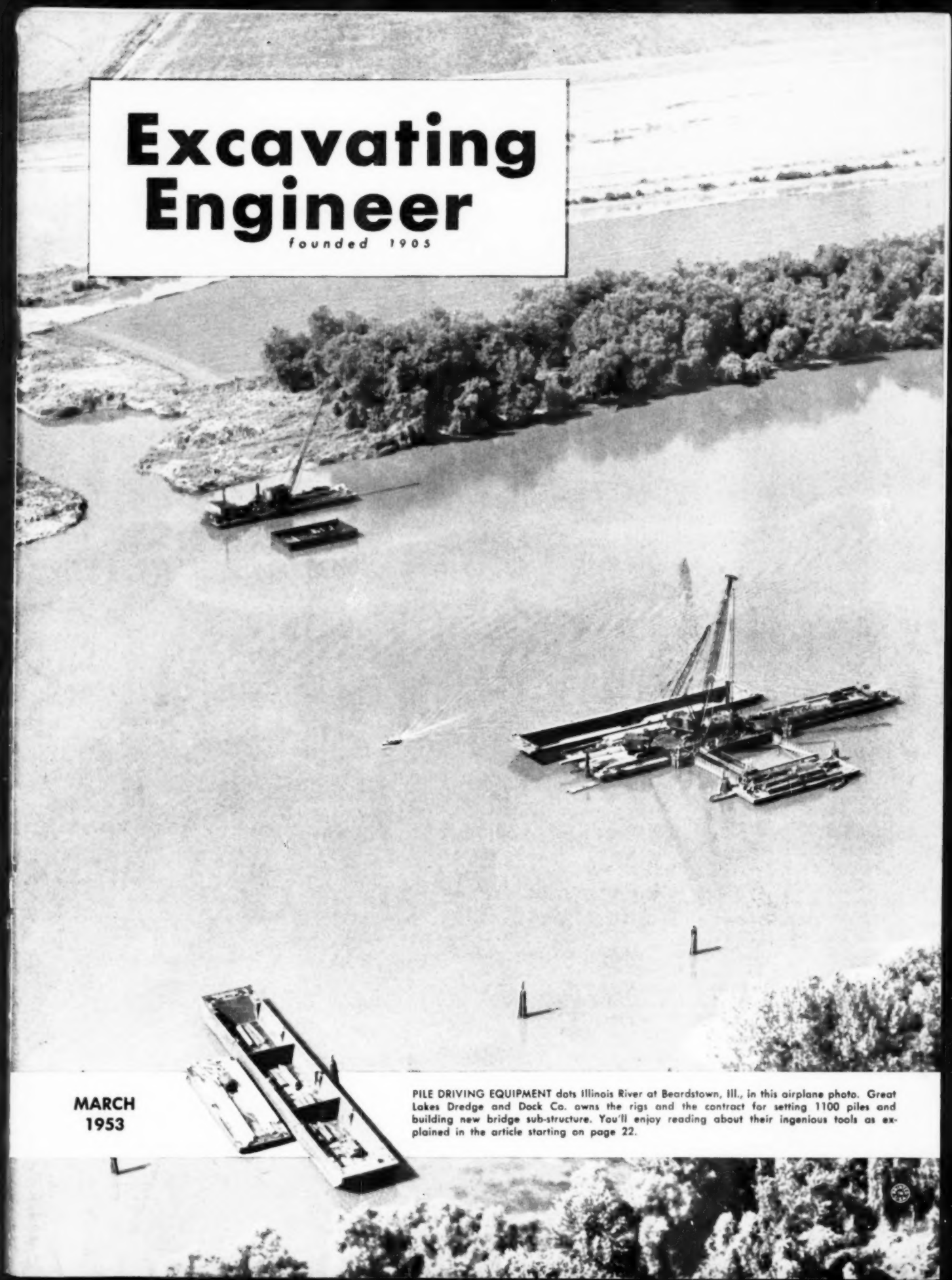
Excavating Engineer

founded 1905



MARCH
1953

PILE DRIVING EQUIPMENT dots Illinois River at Beardstown, Ill., in this airplane photo. Great Lakes Dredge and Dock Co. owns the rigs and the contract for setting 1100 piles and building new bridge sub-structure. You'll enjoy reading about their ingenious tools as explained in the article starting on page 22.

Outstanding Control Means

Outstanding Performance

EXCLUSIVE improvements in the Ward Leonard rotating control system on Bucyrus-Erie walking draglines provide the excellent speed-torque characteristics that make this control ideal for big output on mining operations.

Small "pilot" exciters regulate, through exclusive Bucyrus-Erie features, the output of the main exciters . . . the field current to the DC generators. The results are exceptionally fast response, quick acceleration and deceleration of the driving motors . . . effectively speeding up the over-all operating cycle and thus increasing output.

This contact-free variable voltage control system also helps reduce electrical and mechanical maintenance. Combined with heavy-duty mill-type motors and efficient motor-generator units, it provides the finest electrical equipment available.

103L52

BUCYRUS ERIE

SOUTH MILWAUKEE
WISCONSIN

1,000,000

INDUSTRIAL ENGINES

built in ONE year

It's a new world production record — never before accomplished. For 33 years BRIGGS & STRATTON has been establishing a long list of firsts. And now, in 1952, another is added.

BRIGGS & STRATTON is recognized as the pioneer and the leader in its field . . . setting new standards, year after year in engineering, in design, in engine performance and in precision mass production.

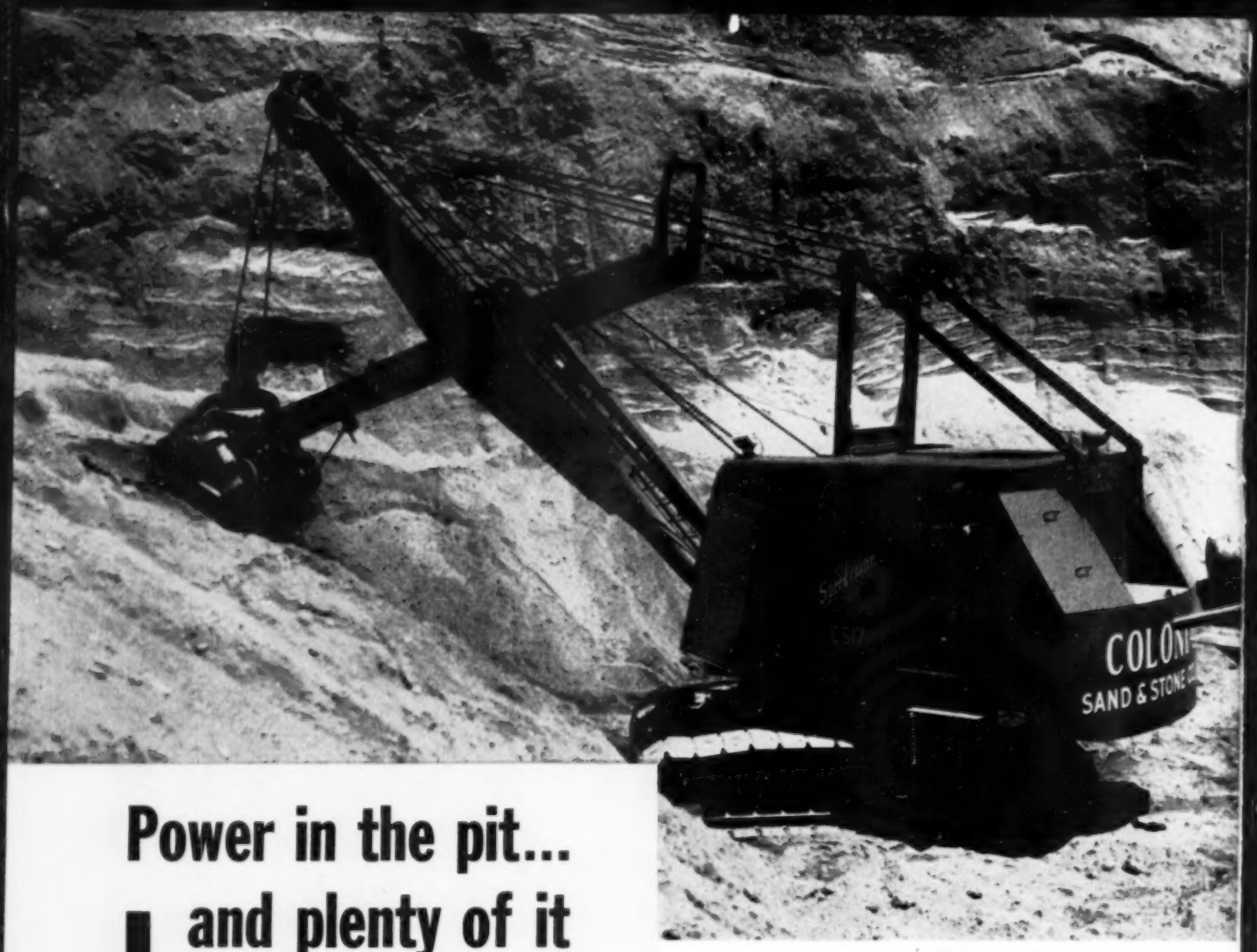
Whether you are a manufacturer, dealer or user of gasoline engine powered equipment — you are assured of top performance when you specify BRIGGS & STRATTON 4-cycle, single cylinder, air-cooled engines. They are the "preferred power" value all over the world.

BRIGGS & STRATTON CORPORATION
Milwaukee 1, Wisconsin, U.S.A.

4 CYCLE
BRIGGS & STRATTON
GASOLINE ENGINES

BRIGGS & STRATTON 4-cycle, single cylinder, air-cooled engines are available from ¾ to 8¼ hp. — in many models and types. They are preferred power for hundreds of types of machines, tools and appliances. All are backed by a world-wide service organization, factory supervised, unequalled in the industry.

In the automotive field, too, Briggs & Stratton is the recognized leader — and the world's largest producer of locks, keys, and related equipment.



Power in the pit... and plenty of it

On the tip of Long Island, N. Y., the Colonial Sand & Stone Co. uses this Manitowoc Speed Crane to load sand onto a conveyor belt. The 2½-yd. bucket handles 350 yds. an hour, nine hours a day.

Foreman Lawrence Miguez says, "It's an easy machine to operate and it has plenty of power to back it up." It gets that power from a Caterpillar D17000 Diesel Engine.

This 200-HP Diesel engine has the power and the stamina for a tough job like this. Right at sea level, in sand and mud all day, its special Caterpillar oil breather and air cleaner keep dust and grit out, keep that bucket moving without down-time. And the engine can run at top efficiency on low-cost No. 2 furnace oil, too: its single orifice injection valves will not foul or clog even on inexpensive non-premium fuels.

Leading manufacturers of excavating equipment can furnish this same kind of reliable, economical Caterpillar power in the machines they build. It will pay you to *specify* it when you buy. Your Caterpillar Dealer will be glad to demonstrate why. And he's the man to see for service, too, and for those genuine Caterpillar parts which guarantee you the same Caterpillar quality that's built into every one of these Diesel engines and electric sets.

CATERPILLAR, PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

Diesel Engines
Electric Sets

Advertisers

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Excavating Engineer

founded 1905

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Sharp-eyed, regular equipment inspections keep Kaiser's ore mining rigs running to feed West's biggest steel mill.

Bigger Population Spurs Puerto Rico Housing — by Albert S. Keshen 38

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"Mother's asleep now, son," Dad told him. "She'll be asleep a long, long time. It's kind of like going away. We'll have to learn to get along without her, Johnnie."

To a statistic named Johnnie

Who's Johnnie? Just one of the 175,000 children under eighteen here in the United States who have lost a mother to cancer.

Statistics are a little too big for a boy this small to understand. Even the hopeful ones about cancer—and there are more every year.

More and more today—cancer can be cured

Patients are being cured who could not have been saved—even five years ago. In 1952, some 70,000 with cancer were saved.

And this number could have been doubled, if treatment in all the cases had been begun in time.

Your contributions to the American Cancer Society helped make such hopeful statistics possible. And they can make the story even brighter tomorrow.

Not for Johnnie, to be sure.

But for all the other children—*they might be yours*—who still have their mothers and fathers. If only *one tenth* of the millions of people like you who have such good intentions would actually take the time to send us their contributions! *And would do it now—instead of turning the page . . .*

AMERICAN CANCER SOCIETY

Gentlemen:

Please send me free literature about cancer.
Enclosed is my contribution of $_____
to the cancer crusade.

Name _____

Address _____

City _____ State _____

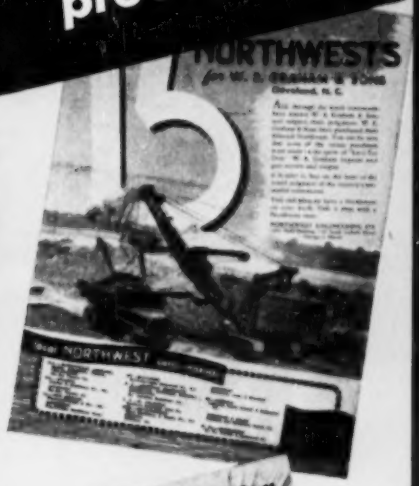
Simply address the envelope:
"Cancer," c/o Postmaster, Name of Your Town

CANCER STRIKES ONE IN FIVE

Strike back—give to the American Cancer Society

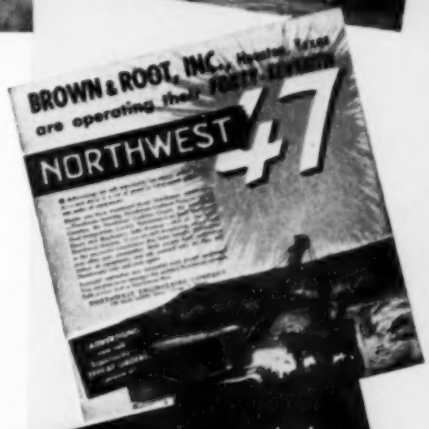
We never get tired of telling you

Advertising can talk superiority but . . . REPEAT ORDERS prove it!



A lot of people have said to us, "Don't you get tired of running those ads with numbers in them, telling about repeat orders, year after year"? Remember this; Advertising can talk superiority but a repeat order proves it. There is no better endorsement of the performance of a piece of equipment. Remember, too, there are a lot of manufacturers that can't do this *month after month and year after year!*

A repeat order tells you better than all the type we could use that what we claim is *so.* It proves that Northwest equipment is *profitable* equipment to own and the fact that we have been able to run this type of advertising for years proves that Northwest has *maintained quality and more than kept abreast of conditions.* That, too, is why one out of every three Northwests sold is a repeat order.



Successful Contractors Stay Successful With Proved Equipment

NORTHWEST ENGINEERING COMPANY
1506 Field Bldg., 135 South LaSalle St., Chicago 3, Ill.

NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

FLEXIBILITY
with side-dumps only!

WITH EASTON SIDE-DUMP FLEXIBILITY you can change quickly from a single dump truck to a large capacity truck-and-trailer combination — or from a single trailer to either a truck-and-trailer or a double-trailer combination. This flexibility, *possible only with side-dump equipment*, provides for rapid, low-cost conversion to meet changing job-to-job requirements, increased production requirements, or newly developed job conditions. You make your best plans now *and for the future* when you start hauling with EASTON SIDE-DUMPS.

as a TRAILER

EASTON TRAILERS are built in all three of EASTON's basic side-dump designs — doorless pan, lift door and drop door. The unit illustrated is an EASTON TYPE TD automatic drop door trailer, hydraulically dumped.

as a TRUCK BODY

EASTON TRUCK BODIES are also available in the three standard basic EASTON designs and in several capacities. The unit illustrated is an EASTON TYPE BD automatic drop door body, hydraulically dumped.

as a COMBINATION

EASTON SIDE-DUMPS, of any type, may be joined in truck-and-trailer or double-trailer combinations to be used as single units or in combination, as required. The unit illustrated is an EASTON TYPE TD double-trailer combination, hydraulically dumped. Overall capacity, 45 tons.

D-1098

INVESTIGATE **EASTON** SIDE-DUMP FLEXIBILITY!

EASTON

Conversion equipment may be supplied for units now in service, as well as on new orders. Consult EASTON for a qualified engineering recommendation. Write today . . .

EASTON CAR & CONSTRUCTION COMPANY · EASTON, PA.

"Here's one place where it pays to be TIGHT!

"Shooting a blast is like jumping with a parachute . . . everything's got to work right the first time, or else!

"And everything depends on the loading and hook-up. You need *tight* connections all along the line, and you get 'em quickly and easily with Primacord.

"For the trunk line, I use Plain Primacord. It ties easily in knots that don't loosen up.

"That square knot is used above ground, when you want to lengthen the trunk line.

"Just remember to *pull it up tight*. You can, with Primacord."

Ask your explosives supplier or write for further facts to

THE ENSIGN-BICKFORD COMPANY
Simsbury, Connecticut
Also Safety Fuse Since 1836

PLAIN PRIMACORD

is very flexible and light in weight. It has a tough textile cover and can be tied up tight without slipping. Use it as the down line in small bore or shallow holes and as the trunk line to connect all holes.

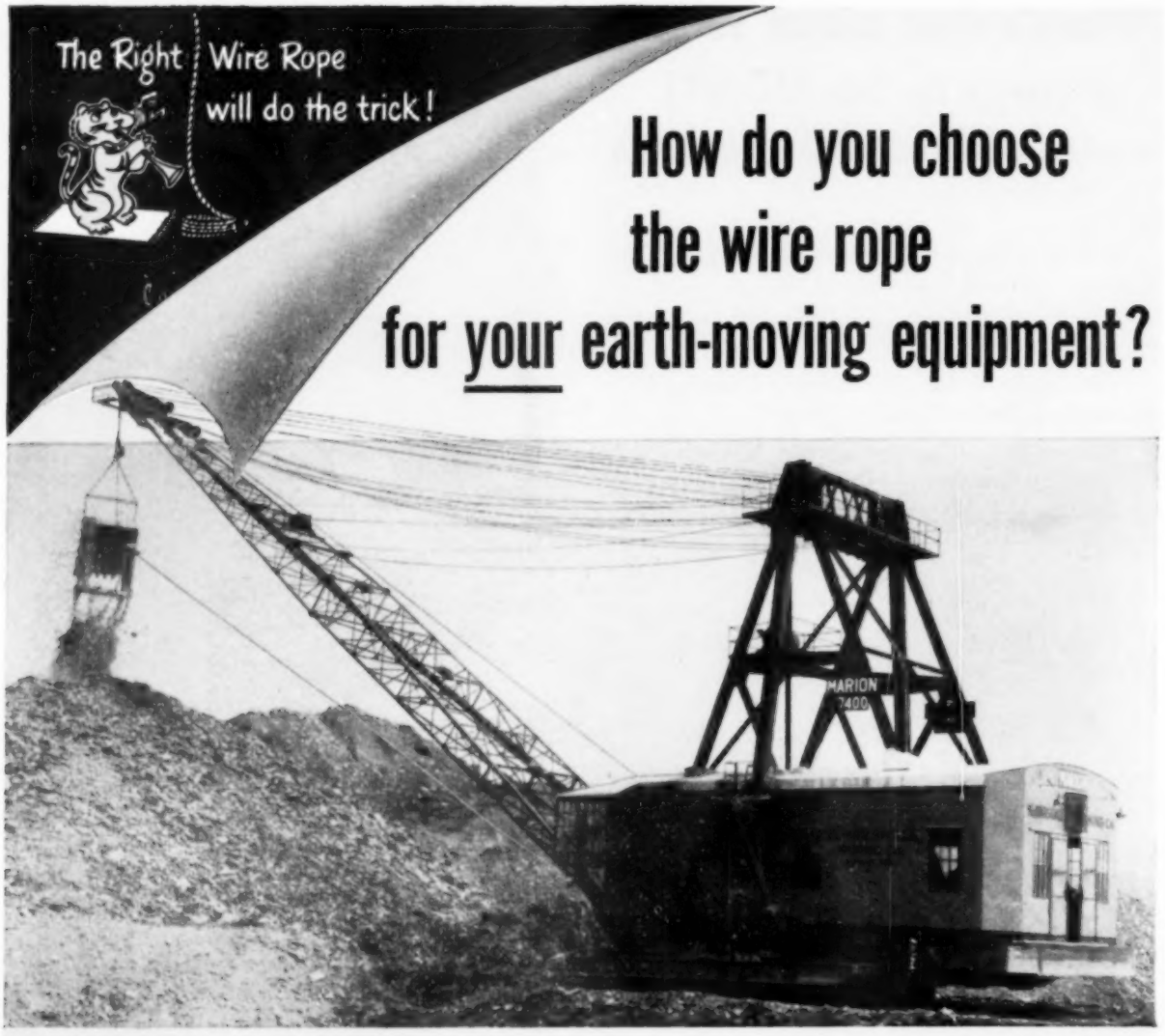
Other PRIMACORD Brands

Reinforced — for deep holes and resistance to abrasion
Wire Countered — for deep ragged holes
Plastic Reinforced — for deep holes and unusual wet conditions.

P-2

Use PRIMACORD®

The PROVED and APPROVED DETONATING FUSE



How do you choose the wire rope for your earth-moving equipment?

EVERY wire rope on your stripping or excavating machinery needs a particular combination of strength, fatigue resistance, and flexibility. Hoist ropes on big power shovels need high tensile strength to absorb impact stresses and must be extremely tough to withstand constant bending over sheaves. On draglines, drag ropes must possess high strength combined with great abrasion resistance. Boom ropes must have strength plus fatigue resistance.

There's an American Tiger Brand Wire Rope that has been especially designed for every grueling rope job that you will encounter. And it pays to spend a little extra time to analyze your rope requirements carefully and determine exactly which Tiger Brand Rope is the best one to use.

Our experienced Wire Rope Engineers will be glad to help you do this. They know what every Tiger Brand Rope can do and what type of rope every job requires. Their assistance assures you of getting the *right* rope for every job; and that saves you money. Remember, the right rope often lasts up to twice as long as the wrong one. Free engineering service is available through our nearest District Sales Office or by writing to American Steel & Wire, Rockefeller Building, Cleveland 13, Ohio.

AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL CORPORATION, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

U·S·S AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

In dead end spots such as this, two-way steering proves its worth. No switching, no backing . . . straight in, swing the seat, and straight out. The "Shuttle" has the quickest "turn round" of any Dumper.

Cut haulage costs

with a

'SHUTTLE'

- It's tough
- It goes places
- It's a sure tip

THE
AVELING-BARFORD
SHUTTLE DUMPER
4½ cu. yd. CAPACITY

Engineered for heavy duty, the time-tested and performance proved Aveling-Barford 4½ cubic yard Diesel Shuttle Dumper has all the features that make for low cost haulage over medium and short runs.

It has plenty of power, four speeds in reverse as well as forward, patent two-way steering — the operator can always face direction of travel, instantaneous tip — gravity or power assisted, seat operated differential lock, and many other valuable refinements.

Easy to handle and easy to ride it has remarkable stability over rough ground permitting the maximum speed that job conditions allow. In quarries, mine working, on public works and contracts all over the World, the Aveling-Barford Shuttle Dumper is invariably first choice for working with medium size excavators.

Get to know more of this British built Dumper . . . write for Folders Nos. 1529 and 1620.

WORLD-WIDE SPARES AND SERVICE COVERAGE

AVELING-BARFORD LIMITED
GRANTHAM ENGLAND

INVICTA

Stocks of Bethlehem wire rope are usually no farther away than your telephone. Warehouse facilities are geared for high-speed service on emergency calls.

Heading your way in a hurry

Ever had a job stalled by a sudden emergency need for wire rope? A job where every hour, every minute, counted?

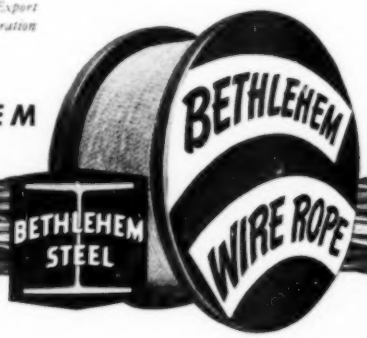
Those things happen. And when they do it's good to know that you're always near a Bethlehem mill depot or distributor. Through a large, quick-acting distribution system, Bethlehem makes it easy to get the rope you need . . . the proper size, type, and grade. Whether you're out in the sagebrush or working a job in the heart of the city, you're never very far from a large, convenient warehouse supply.

So put in a call, outline your needs, and the Bethlehem rope you want will soon be heading your way. Sound, dependable rope. There's none better. And there's no better, friendlier service than Bethlehem and its hundreds of distributors can offer you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. Export Distributor: Bethlehem Steel Export Corporation

When you think WIRE ROPE . . . think BETHLEHEM



YOU'RE 5 YEARS AHEAD
when you buy a Jaeger compressor

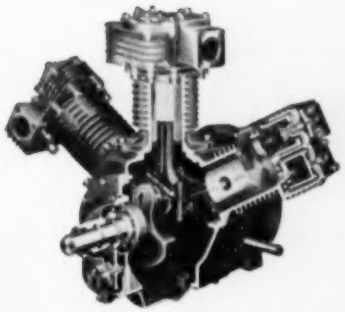
Some compressors are still being built to the old 1932 ratings which are too small for modern air tools.

Other models have recently appeared with the higher ratings needed today.

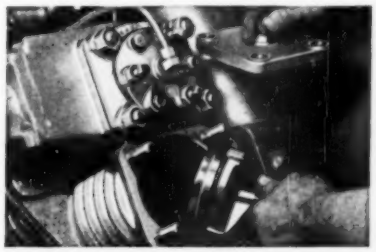
These higher ratings, which others now offer in "new models," are the ones Jaeger has been building for 5 to 7 years, and backs with proved performance of more than 30,000 "new standard" compressors in the field.

NEW:	**75 cfm**	**125 cfm**	**185 cfm**	**250 cfm**	**365 cfm**	**600 cfm**
OLD:	60	105	160	210	315	500

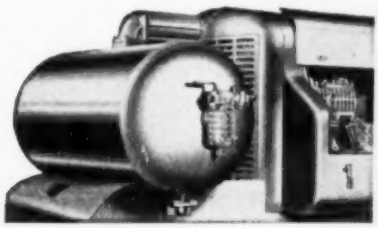
These 15% to 25% higher ratings insure 90 to 100 lbs. pressure at today's big tools, instead of 70 lbs., increasing their work output by 30% to 40%. No "old standard" machine can successfully compress, cool and deliver these larger air volumes. No new compressor has been built to deliver these volumes with the smooth, cool, long-life performance of the Jaeger Air-Plus.



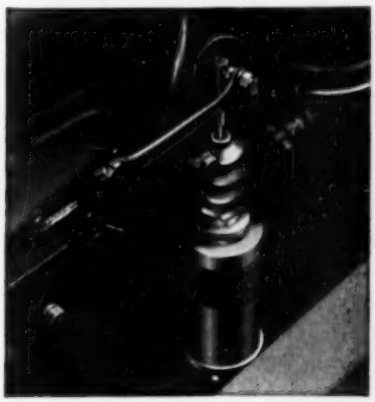
Balanced W-type 2-stage compressor standard in all sizes, 75 - 600 ft. Cooler and smoother running than any V-type.



75% to 100% larger valves for free flow without back-pressure.



Larger intercoolers, and air receivers. Relief valve for automatic drainage standard on all models.



Jaeger "Fuel Miser" standard on all models where automatic control of engine speeds means worthwhile fuel savings.

Run these tools at 90-100 lbs. pressure

Model 75: 1 heavy breaker

Model 125: 2 heavy breakers or a 55 lb. sinker

Model 185: 3 heavy breakers, 1 heavy rock drill, 2 medium rock drills, or one light wagon drill

Model 250: 3½" wagon drill or 2 heavy rock drills or a 10 hp Ka-Mo earth drill

Model 365: 4" wagon drill plus a plug-hole drill, or runs 15 hp Ka-Mo earth drill

Model 600: Two 4" wagon drills and hand held drill, or runs 9B-3 pile hammer.

Lowest cost compressed air you can buy today

Prices of Jaeger "new standard" compressors are in every case below those being asked for old standard compressors of 15% to 25% less air capacity. On the basis of cost-per-cubic-foot-of-air-delivered, the difference is even greater, amounting to many dollars saving on every cubic foot of air capacity. On the basis of work output, the difference is greatest — amounting to 30% to 40% more production through more efficient operation of your air tools.

Why pay more and get far less when you can buy a proven Jaeger Air Plus Compressor.

For full facts about tools and their air requirements see your Jaeger distributor or ask for Catalog JC-1.

THE JAEGER MACHINE COMPANY

553 Dublin Ave., Columbus 16, Ohio

CONCRETE MIXERS • TRUCK MIXERS • PUMPS • PAVING MACHINERY

MANITOWOC

MODEL 2000—1¼ YD.

Big Machine Performance

plus small machine versatility

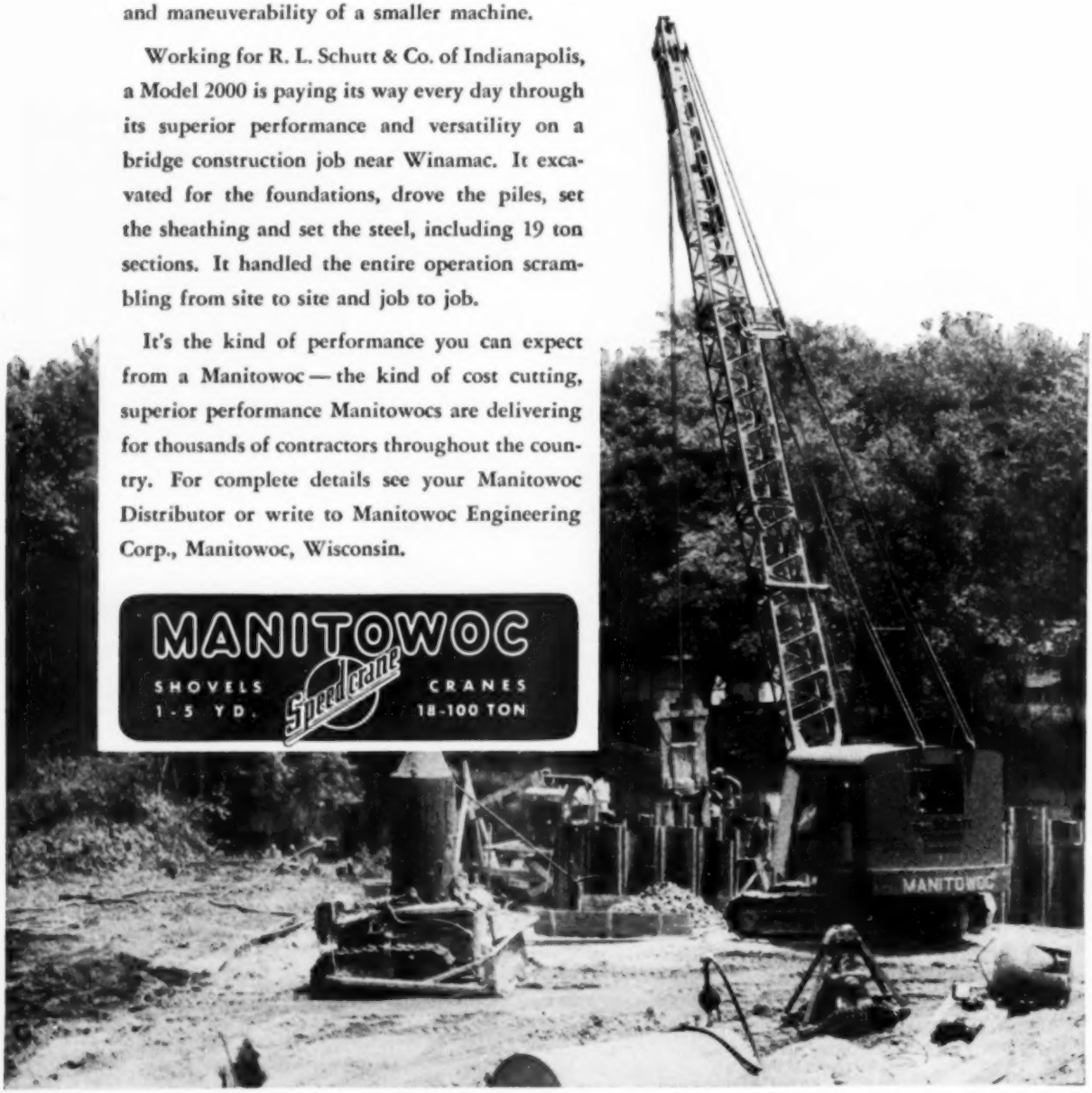
Here's a husky little 1¼ yd. machine with actual capacity of a larger size unit—plus the versatility and maneuverability of a smaller machine.

Working for R. L. Schutt & Co. of Indianapolis, a Model 2000 is paying its way every day through its superior performance and versatility on a bridge construction job near Winamac. It excavated for the foundations, drove the piles, set the sheathing and set the steel, including 19 ton sections. It handled the entire operation scrambling from site to site and job to job.

It's the kind of performance you can expect from a Manitowoc — the kind of cost cutting, superior performance Manitowocs are delivering for thousands of contractors throughout the country. For complete details see your Manitowoc Distributor or write to Manitowoc Engineering Corp., Manitowoc, Wisconsin.

MANITOWOC

SHOVELS 1-5 YD. Speed Crane CRANES 18-100 TON



TAKING A DEEP BITE

in rock drilling costs

A few of the twenty FM-3 Wagon Drills at the Chief Joseph Dam.

THE FM-3 WAGON DRILL

...for maximum drilling power, easier operation, faster set-ups

One way to hold down the rising tide of today's rock drilling costs is to give your drilling crews more *efficient tools* to work with. On any sizeable rock drilling job, Ingersoll-Rand FM-3 Wagon Drills and Carset Jackbits can help you get more footage per shift without extra manpower.

The FM-3 Wagon Drill permits fast, easy drilling in any position. The rubber tired wheels, that can be turned 90 degrees, enable the drill to be moved quickly from hole to hole. A powerful worm gear mechanism easily raises or lowers the drill guide at the turn of a crank. And the heavy-duty X-71D drill, with air power feed is world known for its exceptional drilling speed and hole-cleaning ability.

Use the FM-3 Wagon Drill with longer lasting, faster cutting Ingersoll-Rand Carset Jackbits and you've got a combination that can speed up your rock drilling work all along the line. Ask your nearest I-R representative for further information.

749-5

Ingersoll-Rand

11 BROADWAY, NEW YORK 4, N. Y.

ROCK DRILLS • COMPRESSORS • AIR-TOOLS • CENTRIFUGAL PUMPS • TURBO BLOWERS • CONDENSERS • DIESELS • GAS ENGINES

"... More than 50% of our employees are on the Payroll Savings Plan..."

PAUL W. JOHNSTON
President, Erie Railroad

"We on the Erie Railroad are extremely proud that 50% of our employees are on the Payroll Savings Plan for U.S. Defense Bonds. These thousands of employees are regularly providing for their own future security and at the same time contributing to the strength of our national defense. The American habit of thrift and regular purchase of U.S. Defense Bonds Shares in America are evidences of good, sound citizenship."

Good, sound citizenship . . . the American habit of thrift . . . a belief that a strong America is a secure America . . . a management that makes the Payroll Savings Plan available to *all* its employees—these are the reasons why more than 50% of Erie Railroad employees are enrolled in the Payroll Savings Plan.

For the same four reasons, more than 7,500,000 employed men and women in thousands of other companies are active members of the Payroll Savings Plan—their take-home savings in the form of U.S. Defense Bonds total more than $150,000,000 per month.

Is your company in the "more than 50% participation" group? If it isn't, please bring this page to the attention of your top executive. Point out to him—

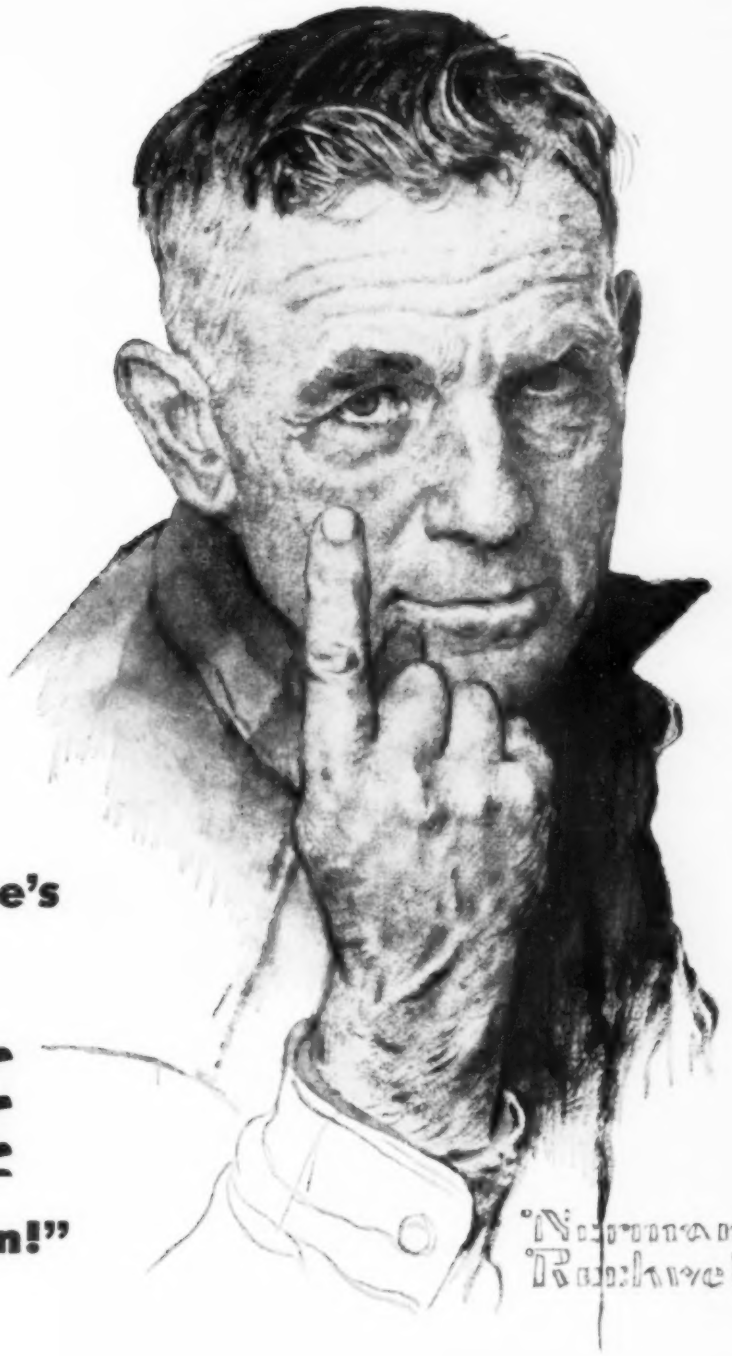
Two Simple Steps to a Successful Payroll Savings Plan

1. Phone, wire or write to Savings Bond Division, U.S. Treasury Department, Suite 700, Washington Building, Washington, D. C.
2. Your State Director, Savings Bond Division, will show your company how to conduct a simple person-to-person canvass that will put a Payroll Savings Application Blank in the hands of *every* employee.

That is all management has to do. Your employees will do the rest. They, like the employees of the Erie Railroad, want to provide for their personal security and at the same time do their part in helping to keep America strong.

The United States Government does not pay for this advertisement. It is donated by this publication in cooperation with the Advertising Council and the Magazine Publishers of America.

Excavating Engineer



"There's only ONE reason!"

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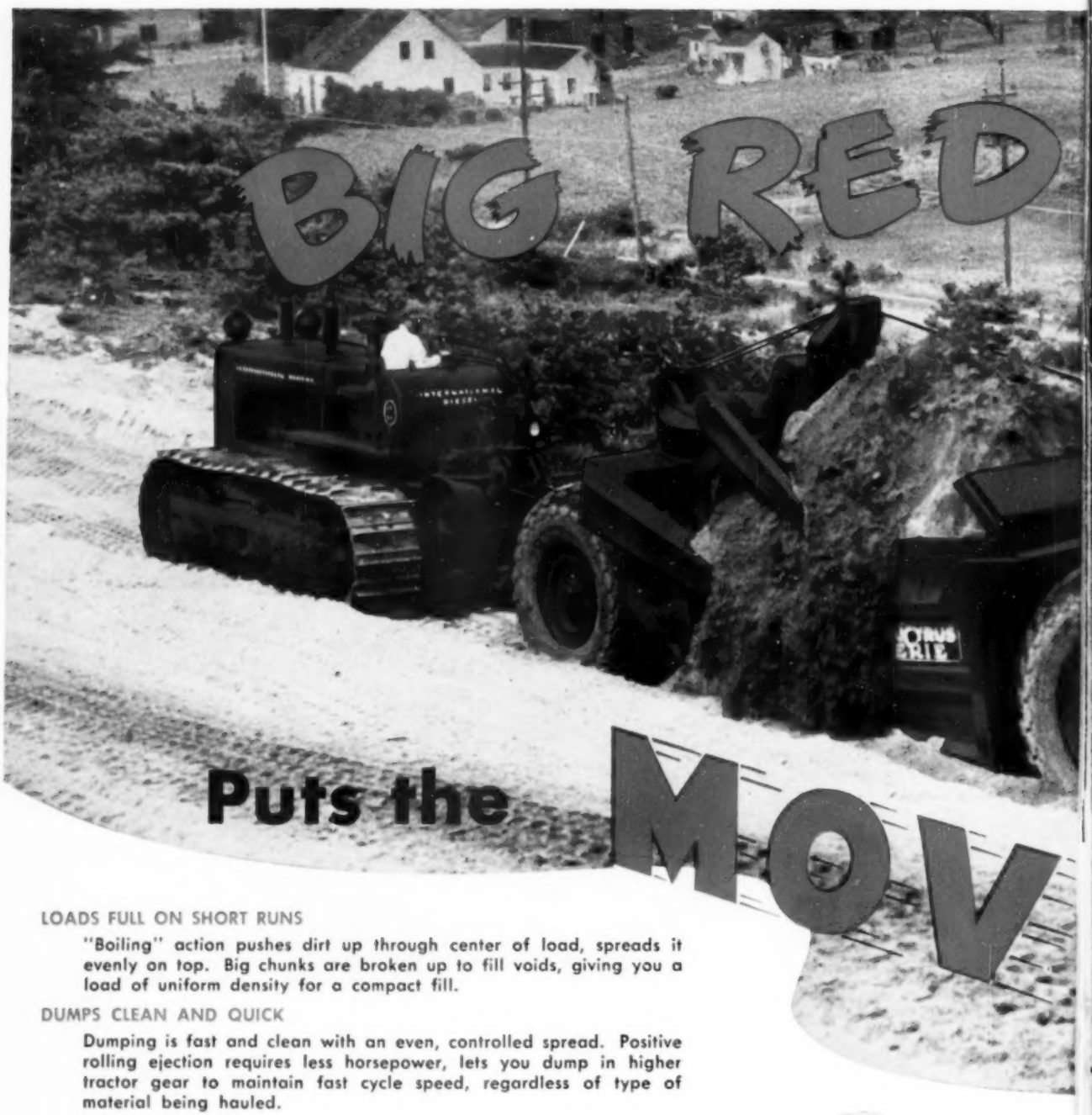

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These features — and more — add up to more output per cycle, more cycles in every working shift. See your International Industrial Tractor Distributor soon for the complete story of the dirt-moving features of The Big-Red Team.

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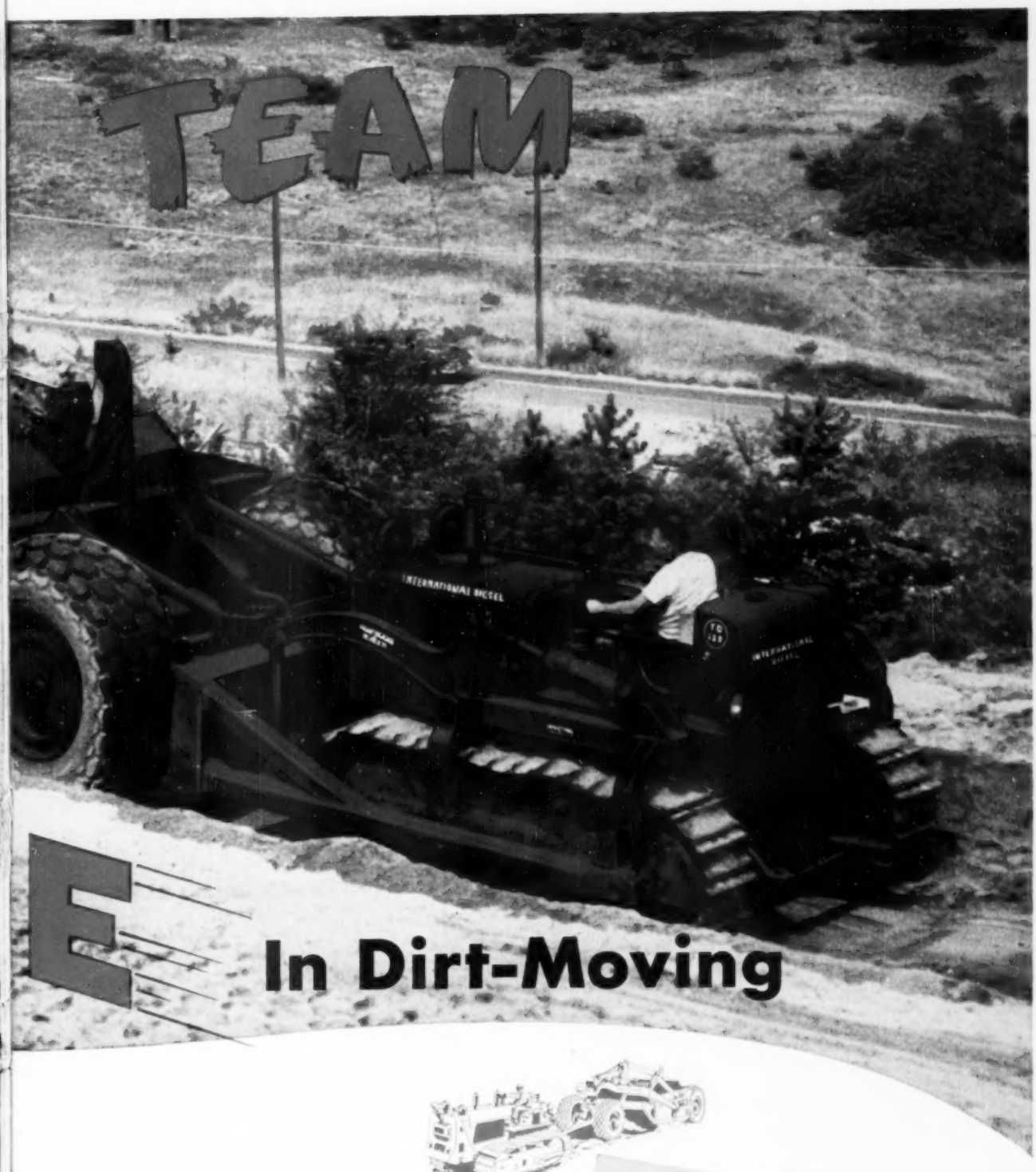

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. . . combination of International TD-24 tractor and Bucyrus-Erie Scraper.

Three Sizes of B-Type Scrapers

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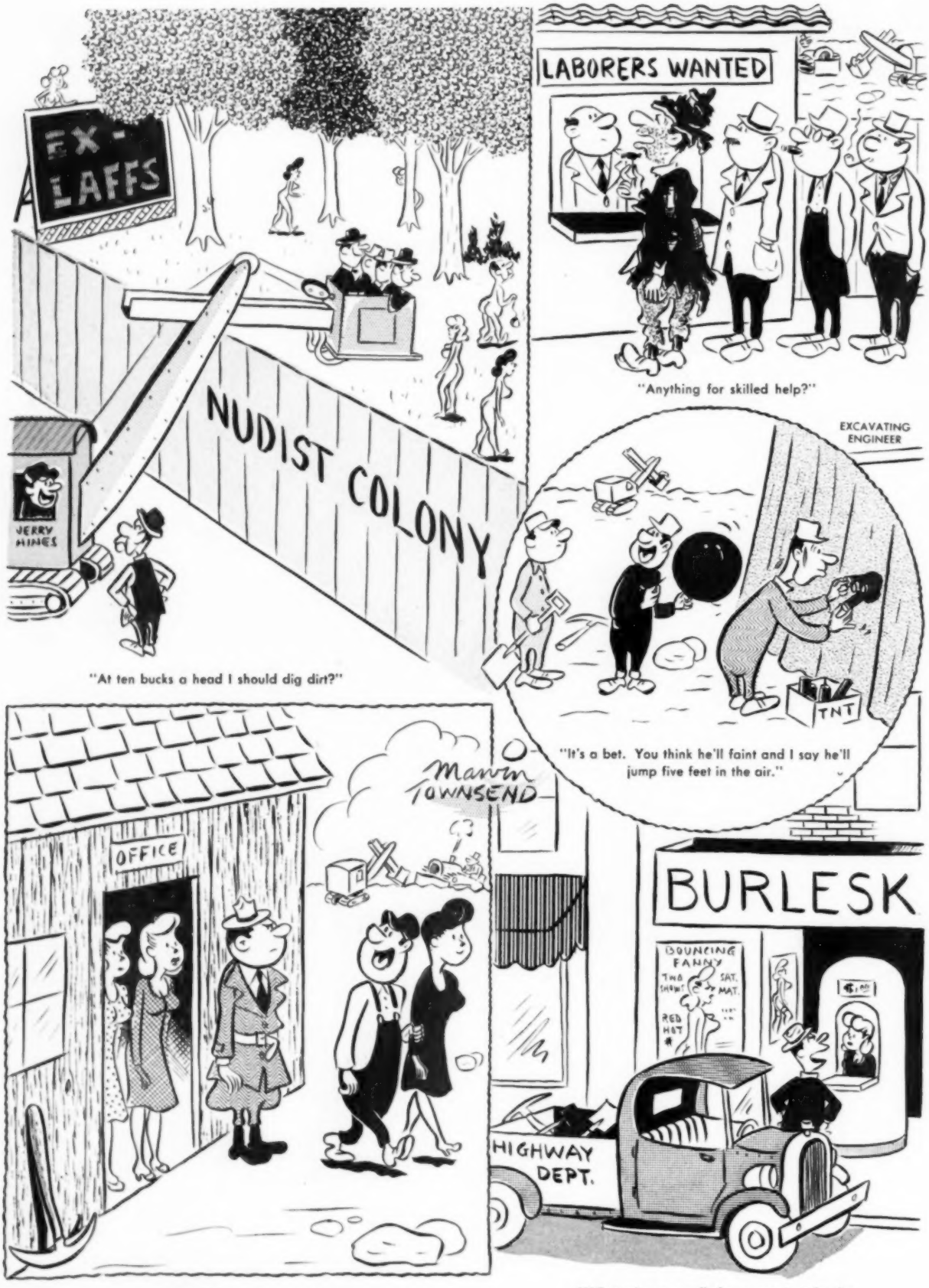

"At ten bucks a head I should dig dirt?"

"Anything for skilled help?"

"It's a bet. You think he'll faint and I say he'll jump five feet in the air."

"You said to take my pick."

"What wise guy called me over to take the bumps out of some dangerous curves?"

high production on Turner Turnpike with...

★ "Eucs" on the Turner Turnpike averaged over 13 m.p.h. for the loaded haul. Top speed of 28.2 m.p.h. with full payload means more trips per hour.

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On a section of the new Turner Turnpike between Tulsa and Oklahoma City, Amis Construction Co. had a really tough job for scrapers—hard clay and sand rock.

Despite the difficult digging, three "Eucs" of 15.5 cu. yd. struck capacity averaged 375 bank yards per hour on a round trip of 3,020 feet, enabling the contractor to complete this work ahead of schedule.

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Your Euclid distributor may be able to show you how Euclid equipment can step up production and lower costs on off-the-highway moving of earth, ore, rock and coal. Have him show you performance figures on work similar to yours.

★ Positive, fast acting hydraulic controls permit spreading the load in thin, even layers. Roll-out ejector dumps all types of material fast and clean.

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7¾ to 79⅛ TONS lift capacity . . . ½ to 2½ YARDS dipper capacity

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Excavating Engineer
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Clever Tools Speed Pile Driving

A box full of ingenious tools helps Great Lakes Dredge & Dock Co. drive square concrete piles at fast tempo. Piling will support new bridge spanning Illinois River.

• Workmen hitch three blocks to wire loops cast into 18-in. square concrete piles. In this way, piles were hoisted from barge which brought them to job site and served as storage space. Piles range from 30 to 55 feet in length and three-block handling means bigger safety factor.

SPECIALISTS in river and harbor improvements, the Great Lakes Dredge and Dock Co. was hard at work last fall driving piles at intervals across the Illinois River at Beardstown, Ill. The contractor, whose home office is in Chicago, was sinking the piles to provide pier footings for a new bridge which will carry State Highway 125 across the river at that west central Illinois town. The contract for erecting the sub-structure had been awarded to the firm by the State of Illinois, Division of Highways.

To set the piles in jig time, the contractor called upon a neat bag of tricks, developed for the job at hand and brought down from experience on other jobs. Included among these tools are a third drum arrangement on one of the contractor's crawler cranes, a tilting pile rest, a special pile grab for hoisting and releasing the square concrete piles, and a telescoping pile guide cage movably mounted on an I-beam bridge that spans the width of the cofferdam and runs on special tracks laid on top of the cofferdam sheeting in full length on each side of the dams.

The total length of the new bridge will be 3655 feet. Over the river channel there will be five spans averaging 450 feet in length. The longest of these will be 580 feet long. At this section the bridge will clear the river surface by 55 feet at high level. The remaining 11 spans will average about 125 feet in length. All piers will rest on concrete piles.

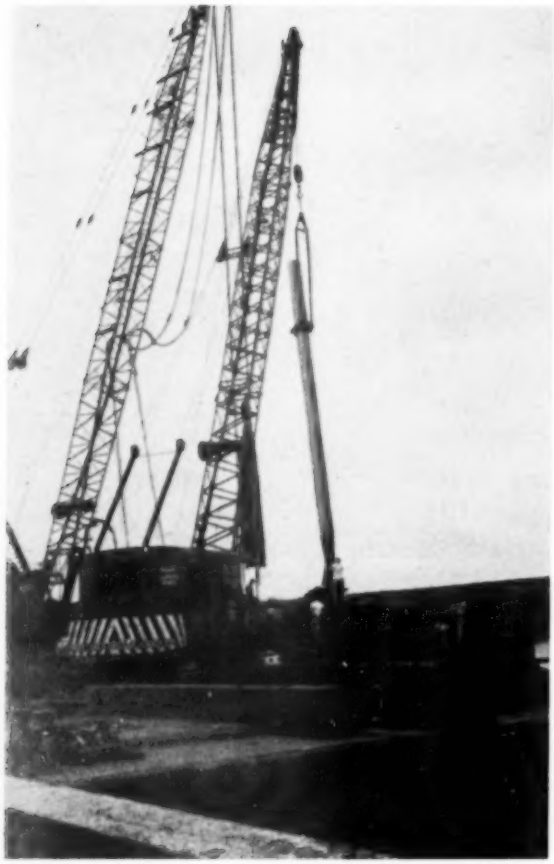
To start off the job, cofferdams were erected at the location of each pier before the piles were driven into place. The cofferdams varied in size with the largest being 58 feet long and 42-ft. 6-in. wide. This size cofferdam accommodated approximately 200 piles spaced on 4-ft. centers along the length and 3-ft. centers along the width of the dam. Smaller dams along the approach accommodated approximately 40 piles. There were two sizes of piles used—18-in. square and 16-in. square. Lengths varied from 30 feet to 55 feet.

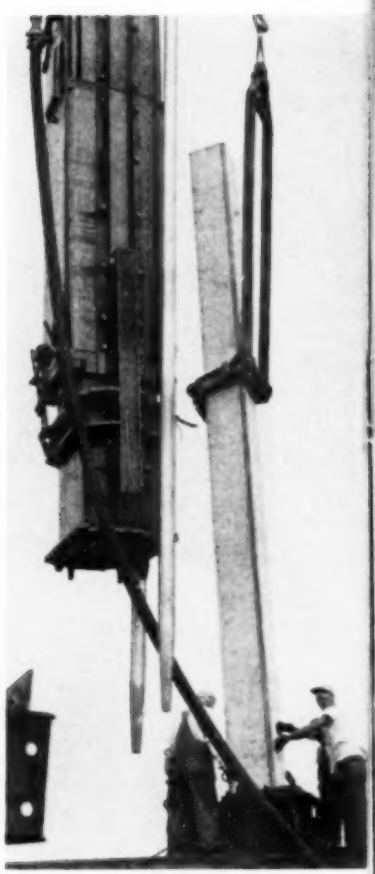
Inside piles were driven on the vertical and all outside piles were driven on an approximate 5% taper. The driving was done before pumping out the cofferdams. With the water level inside of

• Manitowoc 3000A crane eases pile towards tilting pile rest at edge of mother barge. Pile's tapered end points away from barge.

• When pile lies in tilting pile rest, wire loops will be burned off flush with torch. Special pile follower, used in later step, is on barge deck to right of rest.

• Special pile grab lifts pile under power from Manitowoc crane. Automatic grabbing and releasing feature of the company-designed grab was key to job. Note tilt of pile rest as pile is up-ended.





● Above left: Close-up of grab shows how linkage clamp presses against pile, holding it by friction. Above right: Manitowoc crane positions pile over carriage guides on movable bridge.

the dam at the same level as the river, the piles in most cofferdams were out of sight after they were dropped by the crane.

Equipment Layout

To do the job with maximum efficiency, the contractor's staff exercised a good deal of thought in the development, selection, and arrangement of equipment. At the site, a large scow 44 feet wide and 122 feet long provided the operating base. One of the machines stationed on the floating platform was a Manitowoc 3000A crawler crane equipped with an 80-ft. boom. Its assignment was the unloading of piles from a river barge and placing them in position for driving. Another rig on the barge was a Bucyrus-Erie 54-B crawler crane equipped with a 100-ft. boom and long caterpillars. This machine handled the steam hammer and water jets; it was equipped by the manufacturer with a third drum for pile driving. Both crawler cranes moved freely along the length of the scow.

One end of the scow housed the steam boiler and two hydraulic pumps for the jets. At the other end a space was reserved for storage of pile handling tools and for preparing the piles for lifting attachments. All piles were brought to the pier location in a river barge which was also used as storage bin for the piles prior to driving. The barge was moored to the scow which in turn was anchored to temporary timber piles driven into place next to the cofferdam.

To guide the piles into place accurately, an ingenious rail, bridge, and carriage system was brought into play. Along the top and length of the cofferdam, steel plates 18 inches wide and suitably supported on the sheet piling were used as runways or rails for a movable bridge that spanned the cofferdam.

On the bridge, the contractor mounted a movable carriage that guides both the pile and the jet pipes. The telescoping guides extended down to within a few feet of the river bed. The carriage was constructed so that it could be tipped at an angle in any direction. This feature was necessary to position the outside piles which were driven at a 5% taper. With the mobile bridge and carriage, piles were accurately located inside the cofferdam.

To understand the Beardstown bridge method of pile driving as employed by the Great Lakes Dredge and Dock Co., we will follow one pile from the time it was taken off the delivery barge until it rested in place on the river bottom. As received, the piles were fitted with two or three steel-bar loops cast into the concrete, depnding on the length of the pile. These were used for loading and unloading the piles.

Unload Piles

The Manitowoc 3000A crane unloaded the piles. Tackle blocks with two or three hooks were used to lift the piles. This handling method conformed with Illinois state safety regulations. The crane placed the pile in the hinged pile rest at the end of the scow allotted to pile handling. The hinged rest overhung the end of the scow, a feature which shortly came into use.

The hook blocks were removed and the steel hook loops were burned off

• Above left: Crane operator lowers pile through guides. Hammer and jets at left are held by Bucyrus-Erie 54-B crane which stands by until pile is lowered. Above right: Grab descends until it strikes timbers atop guide cage. Grab opens and pile falls free through guides.

• Right: The Bucyrus-Erie 54-B crane then swings hammer and jets back over pile. Jets alone are inserted through guides and pile is dropped as far as possible by jetting.

flush with the side of the concrete pile. At this point in the operation, a special pile grab was attached to the Manitowoc hoist line. The grab allowed picking up the pile with no lost time as well as automatically releasing it when it was located in the carriage guides.

While the pile grab is simple, it was the key to the operation. Without it this method of spotting and guiding the piles could not have been used, because it offered no way of releasing a cableloop hitch, that is commonly used.

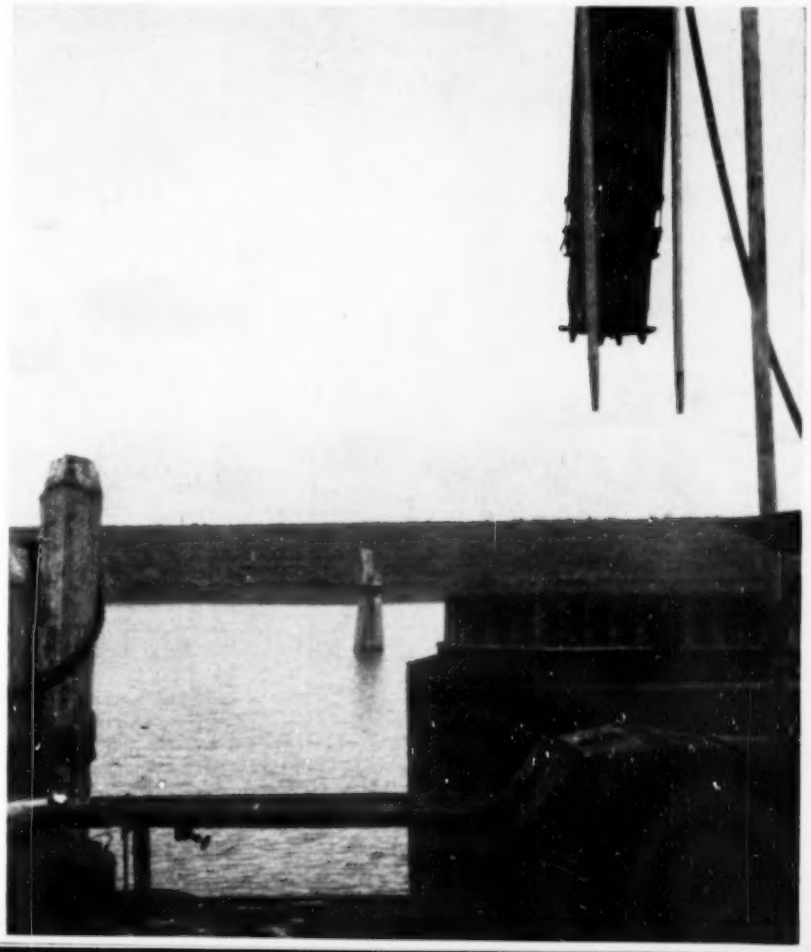
The grab is in effect a linkage clamp so proportioned that when open, it can easily be pushed onto the pile, and when closed, it presses hard enough on the pile to hold it by friction. As the bridle was pulled up by crane hoist line, the collar clamped to the pile. At the same time the hinged pile rest tipped over the side of the barge, allowing the pile to be hoisted in a vertical position.

Drop Pile Through Guides

The Manitowoc crane was swung around approximately 130 degrees with the suspended pile. It was propelled forward until the pile was over the bridge in position for lowering into the carriage guides.

The operator lowered the pile carefully into the guides until the clamp on the upper end of the pile was approximately a foot above the top of the carriage. While the pile was being lowered, the men stationed on the pile guide platform on the bridge put two timbers on top of the guide cage, one on each side of the pile so that when the pile grab was lowered enough its clamping pins stopped on them. As soon as this happened the grab lost its clamping power. The grab was instantaneously brought to its wide open position by the weight of the bridle, and locked by a dog arrangement.

With the release of the clamp, the pile fell free through the telescoping guides into position for jetting. The



Manitowoc crane was propelled back out of operating range and the pile lifting attachment was removed from the crane hook.

The Bucyrus-Erie 54-B crane was then moved into position with jets and hammer suspended over the carriage. Jets were lowered through carriage guides to the river bottom next to the pile. Using the jets alone, the crew dropped the pile as far as possible below the river bed. Meanwhile, the hammer remained suspended over the carriage.

The jets were withdrawn and jets, hammer, and 54-B crane moved back out of the way. The Manitowoc crane then maneuvered into place carrying a steel follower which was inserted through the carriage guides until one end of the follower rested on top of the pile. The hoist line was removed from the follower which was supported by the carriage guides. The Manitowoc moved aside to make way for the next operation.

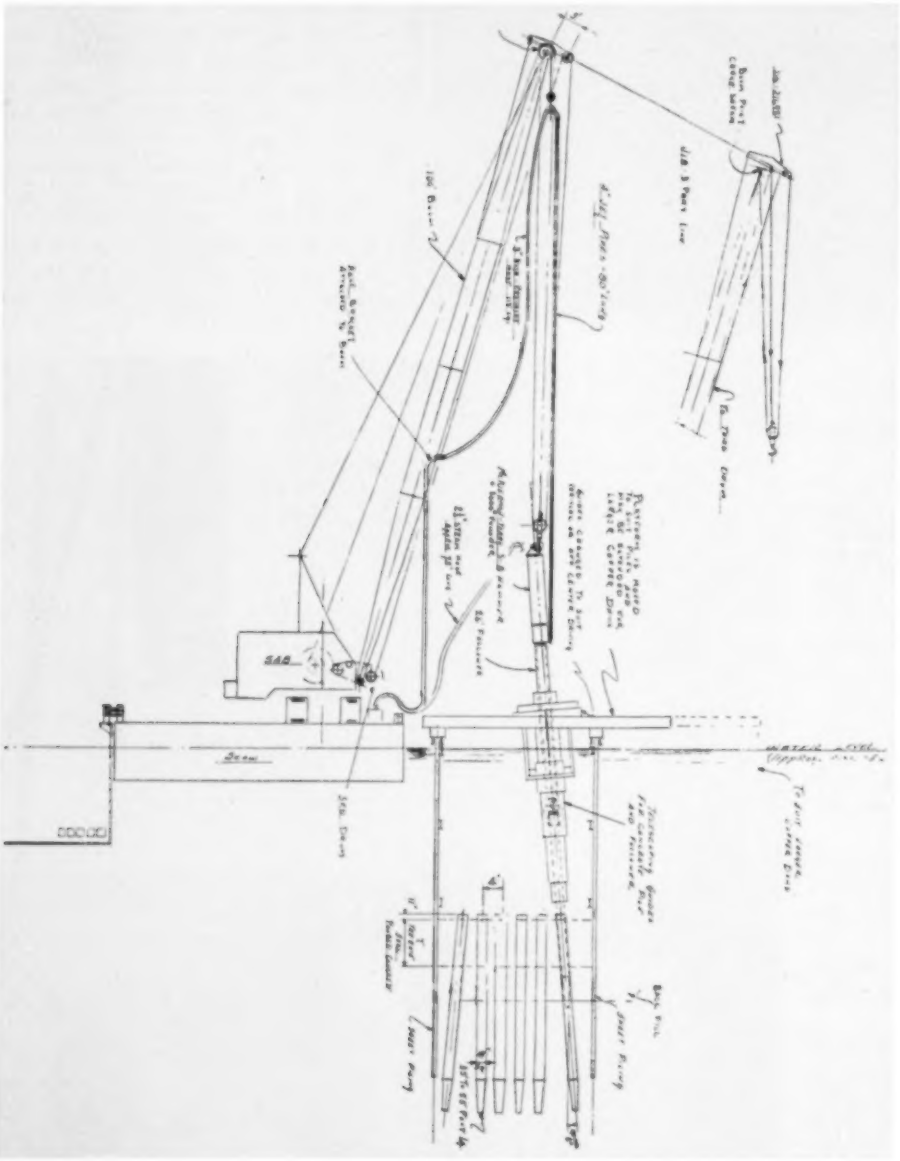
During the driving shown in the accompanying photographs, a 20-ft. follower was used. However, the length varied depending upon the depth of the river. When idle between operations, the follower was stored in a vertical position at the end of the scow with part of the follower in the water.

The Bucyrus-Erie crane was moved back onto the line. The operator again lowered the jets into the carriage guides and the hammer onto the top of the follower. Using the dead weight of the follower, and part of the hammer dead weight, the piles were jetted down to within a few feet of specified pile depth. Jets were withdrawn and only enough driving was done to give the specified bearing capacity of the piles.

Short Cycle Time

The complete operation from the time the pile was lifted from the barge until the steam hammer and follower were removed from the pile top after driving required 30 minutes. Eleven to 19 piles were driven in place during an eight-hour shift.

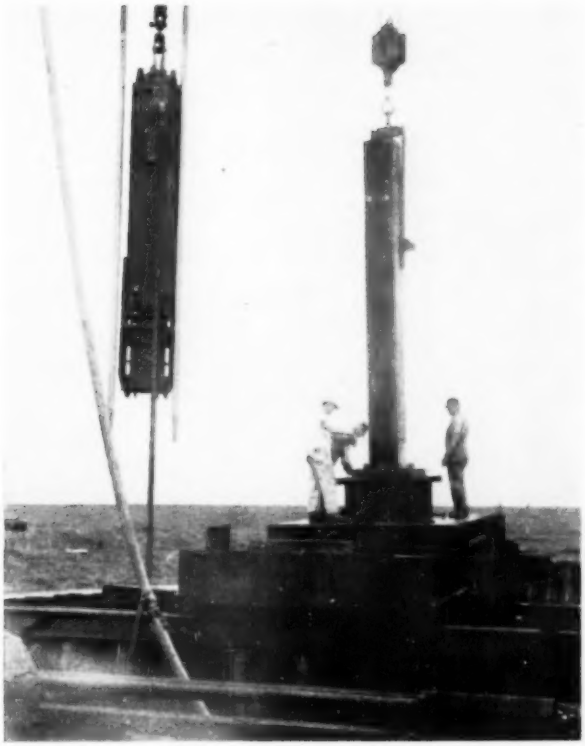
After the pile driving operation was concluded in a particular cofferdam, workmen poured the tremie seal. The seal consisted of a layer of concrete which filled up the entire area between

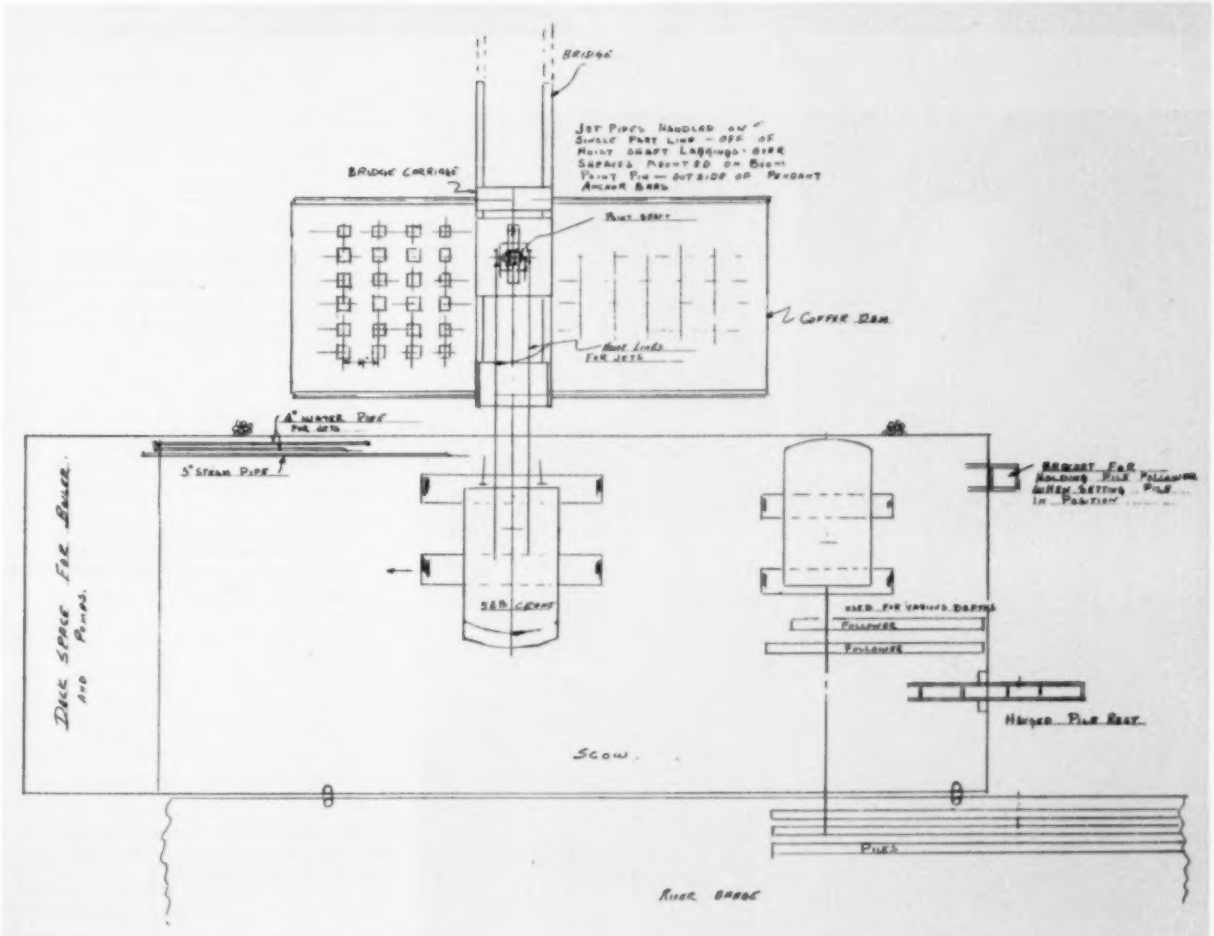


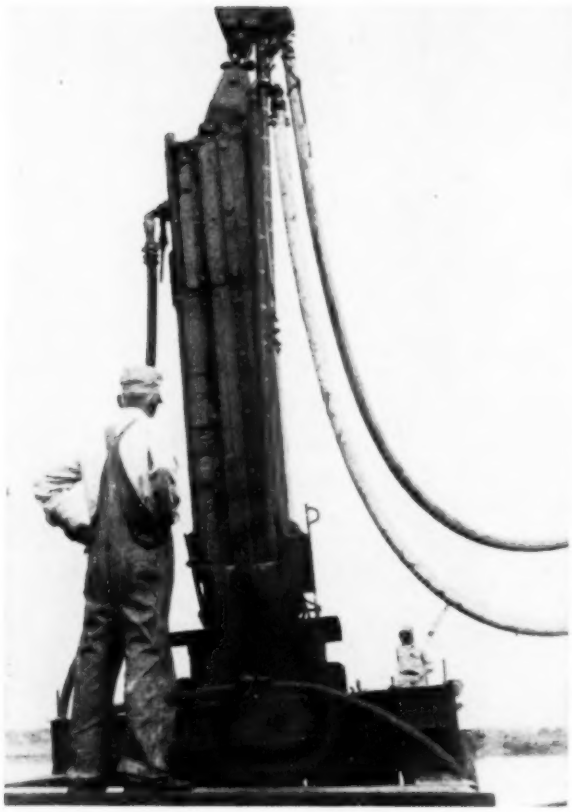
• Pictures on opposite page — First: Manitowoc crane inserts steel follower through carriage guides until one end of follower rests on top of pile. Second: Jets are again inserted through carriage and pile is dropped as far as possible under dead weight of follower and hammer.

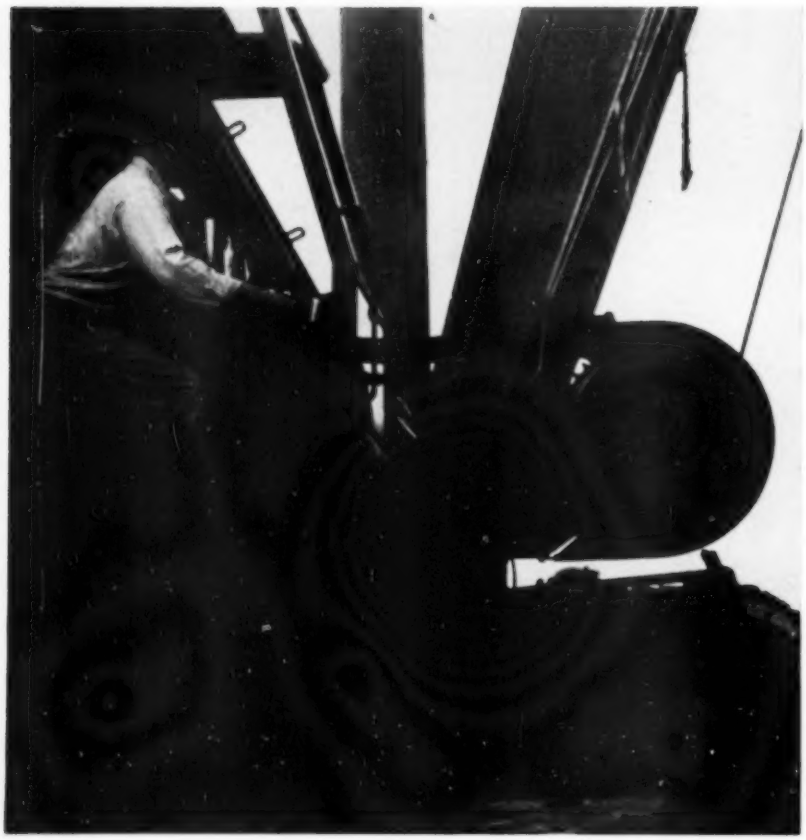
• Left: Drawing shows rig-up on crane used to handle pile driver. Note special jib and third drum arrangement.

• Right: Here is the cofferdam - scow - barge positioning. Placement of equipment on scow is also shown.




BRIDGE
JET PIPES HANDLED ON
SINGLE PART LINE — OFF OF
HEAVY DRAFT LAGGINGS GIVEN
SUPPORTS MOUNTED ON BOOM
POINT PIN — OUTSIDE OF PENDANT
ANCHOR BARS
BRIDGE CARRIAGE
POINT SPOT
COFFER DAM
HOIST LINES FOR JETS
4" WATER PIPE FOR JETS
3" STEAM PIPE
DECK SPACE FOR BOILER AND PUMPS
SCOW
USED FOR VARIOUS DRIVING
FOLLOWERS
FOLLOWERS
HEAVY PILE REST
PILES
RIVER BARGE





• Top left: The carriage is moved on the mobile bridge to position it for the next pile to be driven. Manitowoc helps move carriage while Bucyrus-Erie stands by with driver.

• Top right: Hammer sinks pile last few feet to specified depth. Note tilt of carriage which allows outside piles to be driven at a 5% taper.

• Left: Here is the third drum which was mounted at the foot of the crane boom on the Bucyrus-Erie 54-B.

walls at the bottom of the cofferdam. The thickness of the seal varied with the depth of the water. The concrete was placed to a height which allowed an 11-in. projection of the top of the piles above the top of the seal.

The tremie seal was poured while the cofferdam was still completely filled with water. After a concrete setting period of four to five days, the cofferdam was pumped dry, and the cofferdam steel framing installed. Forms made on the river bank were brought in and the concrete pier completed.

Jet pipes used on the job were four inches in diameter and 85 feet in length. Pipe diameter was determined by strength required rather than volume needed for flow of water. A 115-ft. length of 3-in. hose connected the jets to the General Motors Diesel driven Ingersoll-Rand hydraulic pumps. Pumps were equipped with a 6-in. inlet and a 4-in. outlet. Pump pressures were 150 lbs. psi while pressures at the jet ends were 120 lbs. psi. Separate pumps fed each jet.

Jets were handled on the two hoist laggings with cables reeved from the laggings to sheaves located on the boom point pin and outside of the pendant anchor bars, then down to a yoke at the connection of pipe and jet hose. The rigging permitted adequate and individual control of each jet.

Third Drum Guides Hammer

The Great Lakes Dredge & Dock Co. drove the piles with a McKiernan-Terry S-8 steam hammer weighing in the neighborhood of 20,000 lbs. Weight included a special 4000-lb. cap to suit the follower. Steam, which was transmitted to the hammer through insulated pipes on deck and 2½-in. hose, was used under 120 lbs. psi pressure.

The hammer was handled on a special jib and third drum which had been designed for the 54-B crane. The third drum was located at the foot of the crane boom. A hoist line was reeved from it, over the jib sheave (hoist cable was located *under* the boom), down to the block on the hammer, up over one of the main sheaves on the boom point pin and finally dead anchored on the block. The three-part line provided adequate control for the hammer at all times.

When the job is completed, the new bridge will be supported by approximately 1100 piles. Their weight varies, of course, but the longest of the 18-in. size went as high as 10 tons. All piles were made by the S. M. H. Construction Co., of Peoria, Ill.

The contractor began work on the substructure contract in May of 1952. Winter called a brief halt to the operation but the Great Lakes Dredge & Dock forces will be hard at it again as soon as milder temperatures are the rule. They expect to complete their job sometime next summer.

Three key men representing the pile-driving contractor on this job are Gilbert H. Jaedtke, job superintendent, Peter J. Pellizzari, job engineer, and Fred G. Nielsen, design engineer. Work was supervised for the State of Illinois by C. M. Wahl, district engineer, and Fred Krueger, resident engineer.

● Hammer rests on follower which rests on pile underneath surface of water. Cofferdams were de-watered only after piles and tremie seal were in place. Ingersoll-Rand hydraulic pumps powered by General Motors Diesels supplied water under pressure to jets.

• Although tires are not worn out, service records showed suspicious air leaks. Tires were pulled for further inspection before damage could result. Lee Schilling (L) helps his boss, C. A. Scott, give tire pile quick once-over.

'Let's Avoid Breakdowns, Men!'

by Ray Day

LET'S avoid these breakdowns, men. I believe we can if we get our heads together and figure out how."

C. A. Scott, master mechanic at the Eagle Mountain Mine of Kaiser Steel Co. was talking, and he was doing it in his characteristic, informal way. Scott, who is responsible to mine Superintendent Jim Hansen and Superintendent of Raw Materials Ken Powell for the upkeep of the ore-mining equipment fleet at the company's big open pit mine near Desert Center, Calif., was using the tail end of a lunch hour to teach his men good habits around equipment.

With over a million-dollar equipment inventory already in the pits, the company had just brought in a new Bucyrus-Erie 150-B shovel, one of the world's two largest deep-frame jaw crushers, and smaller equipment like a Bucyrus-Erie Hydrocrane. This equipment would soon be part of the production line serving Kaiser Steel's Fontana mill, one of the two biggest steel manufacturing plants west of the Mississippi River and the West Coast's only integrated plant. That fact, coupled with the enormous investment in the machines, made "Scotty's" responsibility clear.

And Scotty, who believes that sometimes equipment maintenance can be overdone particularly with complex bookkeeping, was trying to develop the cooperation he needed the one way he knew would work: By being just informal enough to conceal his teacher's role. What Scotty was worried about wasn't overdone maintenance. It was the underdone kind that was giving him his headache.

There may be excavating and hauling equipment fleets which get rougher usage than the shovels and rolling stock at the Eagle Mountain iron-ore mine, but they are few and far between. Measured by any standard, Eagle Mountain's excavating conditions are not easy on equipment.

The mine is 52 miles from a main-line railroad, 10 miles from a major highway, and nearly 200 miles from the bright lights of Los Angeles which traditionally have enticed drillers, shovelrunners, and general construction stiffs. For that reason it is difficult to get — and keep — good men. That's Problem No. 1.

The iron ore being removed is heavy, hard, and abrasive. Put a new crawler tractor in one of the pits for cleanup work, and its tracks and grousers will wear down to the idlers, if not maintained much more than two weeks. They use special manganese track plates on tractors to whip this excessive abrasion. The same abrasion

• Big Birdsboro jaw crusher gets the same careful maintenance as rolling stock does. Picture shows ore being conveyed from crusher to siding. Euclids, in foreground, are kept busy feeding crusher.

Sharp-eyed, regular equipment inspections keep Kaiser's ore mining rigs running to feed West's biggest steel mill.

makes life interesting for welders trying to maintain discharge chutes from crushers. The same stuff moving across an unprotected tooth shank and adapter under heavy bail pull will erode metal rapidly. Abrasion, then, is problem No. 2.

Problem No. 3 is probably the weather. Eagle Mountain Mine is in the heart of a California desert, near Joshua Tree National Monument. Summer temperatures often go to 122 degrees, and winter temperatures below freezing are often accompanied by winds which whip sand and dust. The fight with heat and dust never ends. Usually when one ends the other begins, and sometimes, to liven things up, they come together.

Rubber-tired rolling stock at the mine travels loaded down grades as steep as 8%. Locomotives which haul the ore trains out to the Southern Pacific Railroad main line near Salton Sea need maintenance the equal in every respect of that on the SP itself.

A new Birdsboro 66 x 84 jaw crusher is one of the two biggest such types in the world, but some of the ore is

• Master Mechanic C. A. Scott (R) likes his men to remember that "maintenance is a cooperative thing." Left to right, 150-B operator Tom Shorter and Mack truck driver Jess Wadsworth agree with Scott all the way.

tough enough to shake the ground 50 feet around its thousand-cubic-yard reinforced concrete foundation when the ponderous jaws clamp down. In ordinary rock overburden a bystander can neither hear the crusher labor nor feel it vibrate, but some of the ore leaves no uncertain feeling that steel making has its start with some rough excavating.

The equipment maintenance policy for the upkeep of this outsize spread is deceptively simple, but in its simplicity lies the key to its success. Its main factors are these:

1. Equipment has been selected first of all for dependability under the tough operating conditions expected.

2. Manufacturer's recommendations are followed to the letter under a double-check system, except in those cases where previous experience has clearly demonstrated beyond doubt that these recommendations can be modified.

3. Necessary repairs or adjustments are never forgotten. They are entered on work sheets as soon as they come to operator's or mechanic's attention, and remain there until done.

4. If it seems necessary at any time to avert future breakdown trouble by pulling a machine out of the production line for repairs, out it comes. Too much emphasis cannot be given to this policy point. It does much to put the "preventive" in "preventive maintenance" at Eagle Mountain. As master mechanics well know, many a superintendent will hold equipment on the production line until serious trouble develops and forces the machine to shut down. Not Jim Hansen, or Ken Powell. They back their Eagle Mountain master mechanic to the hilt.

5. Operators are encouraged to spot

• Repair shops and yard are shown, with locomotives leaving pit after their regular service check. Railroad, with loaded cars and ore deposit in process of being mined, is in background.

incipient trouble and report it. In addition, with the definite purpose of examining the things operators seldom look for, regular inspections by trained mechanics make it a double-check process. Just to make sure the mechanics don't forget anything, ironclad written records are kept which remind them of every job until they do it.

Each of these basic items of policy has some finer details which keep them simple and workable. There is no bogging down in a complex, hard-to-understand form system, for example. Written records made by operators and mechanics are either on simple forms or in looseleaf notebooks so divided that the men can write the information, quickly and easily, in their own words. Scott's office can always polish it up for the regular service history reports sent to the main office at Fontana.

Thus a mechanic might work two days on a tractor and report nothing much more than "Put new final drive in No. 37." But it is just this kind of vital information which is so important. Scott finds that men cooperate much better and do a more complete job of recording the necessary information when the system is simple. They tend to resist when report forms get too complicated.

Must be Teacher

So rapidly does modern equipment change and improve that any good master mechanic must be a teacher, too. Yet this teaching must never be obvious. In his own subtle way Scott has made all the service manuals available to everyone by putting them on a special rack in the office his men use. Mechanics who run into trouble they can't solve are usually led verbally all around the puzzle until suddenly they see the solution for themselves. It works, too. Few mechanics have come to Eagle Mountain without going away better for the experience.

Equipment maintenance facilities are currently in the process of change, chiefly because the characteristics of the mining operation have changed since the spread was first opened several years ago. At that time the pit sites were higher than the camp and yards, and practically all the rolling stock had to pass through the yard anyway. Thus, for the first few years, equipment maintenance and even fuel or spot lubrication service was centered at headquarters.

That situation has now changed.

• Working tight against high bank of overburden at Eagle Mountain, Bucyrus-Erie 150-B shovel strips muck from iron ore deposit. Crusher can be seen in background.

The nearby deposit has been fairly well worked out, and excavating operations have moved farther away from headquarters. The pits are still at a higher elevation, generally, so the same problem of grades and haul roads exist. New crushing facilities have been installed, there are more shovels, and the output five days a week is running about 6300 tons per day. By March, when the Fontana mill has an additional furnace installed, output is expected to increase by 50%. The current changes are being made to meet these new demands.

In the headquarters yard is a main shop and repair building, where major repairs are made. Directly behind this shop are pits for locomotive repair. This shop is soon to be enlarged to cover the pit area, and an additional wing will be built. A parallel pit will also be dug, along with a transverse pit connecting the two. Scott expects this new pit arrangement to speed wheel and axle replacement on locomotives or ore cars, and such major repairs should take no longer than a few hours with the new facilities.

In addition to this, a major drive-through service headquarters will be built soon to take Euclid trucks and

• Three Bucyrus-Erie 42-T blast hole drills working close together dramatize coordination of Eagle Mountain's excavation and drilling programs. Below: "That journal's been running hot," locomotive engineer E. G. Mosley (L) tells Assistant Master Mechanic Lee Schilling, who is about to note trouble on his inspection pad so it won't be forgotten. Notation won't leave work program sheet until trouble is corrected.

other such hauling units at great speed. On weekends, especially, this place will be busy, for operators will bring the rolling stock in on Friday night for major weekly checks. During the week, fuel and lubrication will be delivered by conventional service trucks. This installation will bring to a high performance standard the existing grease rack and fueling station at headquarters. Incidentally, bulk oil and a pressure system in the new truck-service center will eliminate the dust and dirt problem now present while barrels are being used.

Enlarge Smith Shop

The blacksmith shop for churn-drill bit-sharpening is to be enlarged also; in fact, the foundations are in now. The new shop will be the last word in bit sharpening. It is being designed according to Bucyrus-Erie design suggestions, with dull and sharp bit storage just outside the building. Dull bits will enter the shop, be unloaded by one of two jib-type cranes, and will pass through a circular route consisting of a heating furnace, bit dresser, cooling rack (where the bits will be transferred to the next crane), an annealing furnace, a quenching tank, and finally to the sharp bit storage rack. New equipment for this shop, all Bucyrus-Erie built, is on the ground.

These additions will make Eagle Mountain's maintenance set-up practically second to none in the southern California area.

The manpower organization to go with this set-up consists of about 45 men working under Scott. The organization includes camp-maintenance men in addition to the mechanical force. Mechanics work 40 hours per week, usually taking their off days during the week, in order to be available Saturday and Sunday when most of the important repair jobs are done. Possibly the best method to show how these men operate is to show the various equipment spreads and how they operate. The major divisions are as follows:

Power Shovels

Power shovel equipment is a 100% Bucyrus-Erie spread. There is a 150-B machine with a 5-yd. heavy duty dipper and Ward Leonard controls made by General Electric. There is a 120-B

with a 4½-yd. heavy duty dipper—and one spare dipper—also with Ward Leonard controls made by Westinghouse. There are three 2½-yd. 54-B's and a smaller 21-B which is used primarily as a crane. The new H-3 Hydrocrane is used primarily for equipment repair and odd jobs, but can be classed as a part of the shovel outfit.

All power shovel maintenance and repair is under supervision of a lead heavy-duty mechanic, John Long, who is one of Scott's three principal assistants. Long's work schedule is similar to the mechanic's, in that he works over the week ends. Long invariably puts in at least 1½ hours overtime every day he works, to personally check each shovel at the end of the day. Often he sits in the cab and operates a machine for several swings. With Long goes a Dodge power wagon, carrying a Hobart welding machine, a winch, a boom, and a full set of heavy-duty tools necessary to service a major shovel spread.

Each shovel operator turns in a simple daily report, which has a place where any unusual trouble, noise, or a bad adjustment of any kind can be reported. It is strictly informal, hardly anything more than a "squawk sheet." But these operator tips are in turn checked personally by Long, who frequently turns up other items the operator may have missed because they did not concern him directly. All of these jobs and adjustments which will hold for the weekend without detriment to the machine are then placed on a work sheet for each shovel. Repairs immediately necessary are made then, without compromise.

When Saturday and Sunday roll around, Long has a big force of mechanics which he assigns to the various jobs. A copy of the work sheet goes on each machine, exactly like the check-off system in vogue in most good automobile garages. As the various things are done, they are checked off and initialed by the mechanics. Later on, these jobs are entered in a service history of each machine in Scott's office.

One of the regular weekly maintenance jobs on the power shovels is an all-day welding job at all the heavy-wear points, especially on the dippers. According to Scott, Superintendent Jim Hansen can be credited with improving digging life and performance.

Spare buckets for the 54-B and 120-B machines permit hardfacing at leisure in the shop. As a rule, bare manganese rod is used in all the flat positions, with Haschrome in all vertical or overhead positions. Tooth adapters are protected by wear plates, usually consisting of worn bulldozer-blade cutting edges if they are available.

Hansen and Scott have worked out a method of reducing dipper wear at a saving of welding rod, too. They found, early in the job, that solidly protected surfaces sometimes tended to erode in channels. Considerable experimenting was done. Finally they discovered that hardfacing beads laid on in a grid pattern from 1 to 1½ inches stopped excessive wear actually better than a solid cover. The explanation is easy. Fine ore particles build up between the "waffles," and much of the normal wear is absorbed on the fine particles. The hardfacing beads stay put longer.

Another good maintenance trick has been developed by a study of wire rope. A master sheet has been prepared for all machines at Eagle Mountain, shovels and drills included. Shovel ropes with tapered, welded ends are available on a stand-by basis in the pits, on special shop-built reels Long's welders erected. To hold down the enormous variety of wire ropes necessary for so many machines, lines are sometimes used on inexpensive spots which are better-grade than the manufacturers customarily recommend. The cable reels in the pits have been invaluable. Mounted on steel rails, they are dragged around by the pit cats.

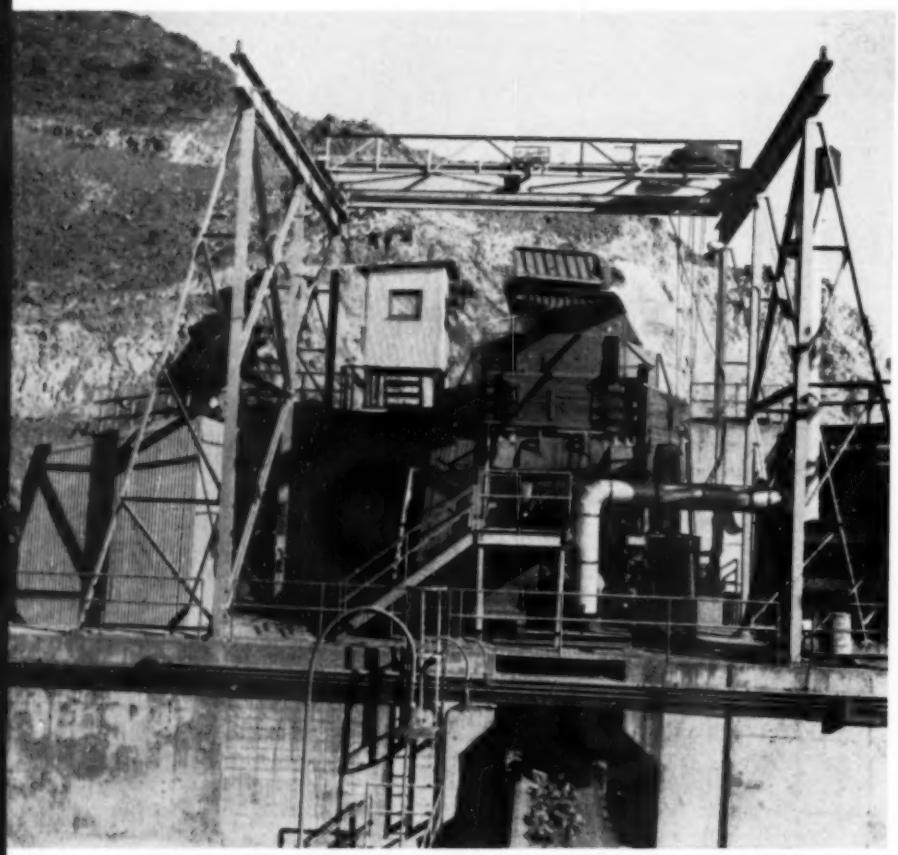
H-3 Has Thousand Uses

The use of the H-3 Hydrocrane for miscellaneous lifting and service jobs around the pit on weekends has almost become a legend. The machine has a thousand uses. What endears it to all the mechanics is its ability to pick up a load, lift it to an opening, and with its telescoping boom to shove it through to where it must go. The machine is also handy for sizable lifts.

Weekly maintenance service on the power shovels includes considerable attention to the electrical systems. Electric-driven blowers and vacuum cleaners remove dust and grit from armatures, brushes, collector shoes, and other such spots. Recently a weekly personal inspection uncovered incipient failure from vibration on the collector windings on the 120-B shovel. The armature was removed immediately, and for a repair cost of about $200 extensive damage was averted to a unit whose cost is $5272.

The 120-B, incidentally, is a case in point to prove the soundness of the

• Using 4160-volt electric power, Bucyrus-Erie 120-B shovel loads ore for Kaiser's Fontana steel mill. Dusty working conditions could cause plenty of electrical control trouble, but weekly cleanup of electrical controls keeps rigs on dependable work basis.



● Large output from 66 x 84 Birdsboro jaw creates abrasive condition through chute where material dumps onto conveyor belt. Hardfacing, lubrication, and jaw plate adjustment are maintenance problems here.

system. Aside from that minor armature job, it has had no other major work in 4 years' service. There has not been a single failure on the 150-B in a year's operation, with the exception of an occasional replacement of a burned point at minor points in its electrical system. The machine, incidentally, has Bucyrus-Erie's Amplidyne control. All electric shovels work on 4160-volt power.

Heavy Duty Trucks

Another of the equipment spreads requiring careful attention is the rolling stock, or heavy trucking fleet. It consists of three Model LD Mack 15-yd. trucks, powered with 300-hp Cummins Diesel engines; six Euclid 27-FD's powered by 165-hp Cummins engines; and 13 Euclid TD's of 15-yd. size, powered by 300-hp Cummins supercharged Diesels. All trucks are equipped with Parker Hydrotarders for downhill hauling under loaded conditions, thus eliminating brake trouble.

The truck spread is maintained under supervision of another of Scott's assistants: Morgan Lack. He operates similarly to Long at the shovel spread. The same basic policy of daily service, emergency repairs, weekend service, and so on rules Lack's crew. Maintenance of the truck fleet has one advantage: There is a pretty complete list of major unit exchanges on hand at the site. Engines, hydrotarders, differentials, and transmissions can be pulled if necessary and a rebuilt unit installed. Stocking these unit exchanges keeps the trucks rolling so dependably that there are no truck spares on the job. Everything works!

Abrasive wear in truck beds has been reduced by equipping all trucks with quarry type bodies. Excellent results have been enjoyed lately by lining the beds with Kaiser 1-in. rolled manganese plate. The material is bolted in sheets to the truck bed, and is giving the best of service in spite of abrasion and shock.

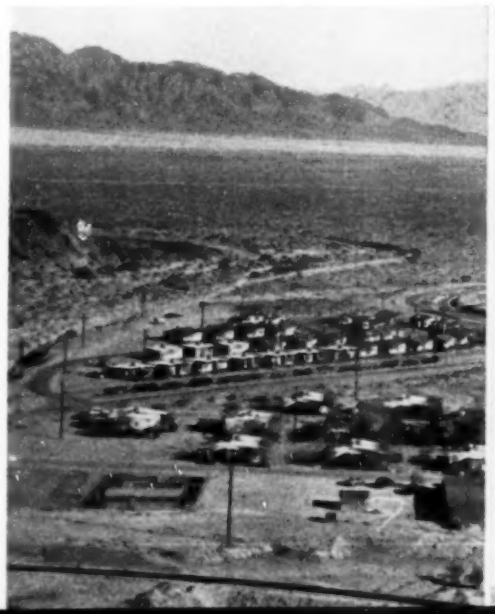
The maintenance of tires is, of course, a problem. Haul roads are dressed almost continuously by a Caterpillar No. 12 motor grader to remove loose rock, and the quarry bodies have also helped to eliminate ore spillage. Spotters at the shovels keep destructive rock chunks out of the way, and every operator watches closely to keep particles from wedging between dual tires. Even so, rubber maintenance is a big enough job so that repair work has been contracted to New Tread Co. of San Bernardino. Augmented by Kaiser's own service policy, this arrangement is getting the most from the tires on the job.

Individual Tire Record

An individual record for every tire in service is maintained. Operating pressures in every tire are checked with a master gauge at least twice a week, and frequently Scott or Hansen himself can be seen making spot checks with their own gauges. When the tires are checked by the tire man, he makes a record of the pressure he found, plus any pressure change he made. If any tire consistently shows air loss, it is pulled for inspection and repair. These records are checked thoroughly and regularly, and simple as they are, they show a tire's general health just as clearly as any hospital chart shows a patient's condition.

Standard's RPM heavy-duty oil is used in the truck engines, and is changed every 200 hours. The new 40 x 30-ft. Euclid service building will do much to speed truck service, because it will have roll-up doors, drive-through service, bulk oil, a complete Alemite lubricating system, service pits, and underground drain tanks.

Locomotive maintenance is almost a story of railroading all by itself, and in several respects the maintenance of locomotives is better than the Southern Pacific uses. However, locomotive maintenance at Eagle Mountain is pat-



terned generally after the Southern Pacific's policy.

Locomotives include four 1600-hp Baldwin 150-ton units and six traction motor units of 750-hp each. The latter machines have three sets of axles under each truck instead of the conventional two, because grades on the 52-mile Kaiser railroad are as high as 2.15%. The locomotives are multi-unit operated, and have dynamic brakes. Energy generated by a locomotive motor going downhill can be dissipated on an electric grid and used for braking the train.

Lee Schilling, another of Scott's assistants, heads up the locomotive and railroad maintenance crews. He, too, operates under the same basic set of rules set by company policy. Locomotive operators and Schilling himself inspect each engine daily for defects, brake trouble, under-rigging appearance, unusual knocks or noises, and to see that the air brake system is in perfect order. Weekly and monthly periodic examinations are made according to Baldwin's recommendations, and these reports are made on factory recommended forms. The extension of the new shop with a cross pit for wheel pulling will speed up service on locomotive underpinning.

Sinclair Gascon GL-HD oil is used in all locomotives. Electrical control systems get the same weekly cleaning as those on the power shovels. Possibly more than on any other type of equipment, locomotive maintenance follows to the letter the manufacturer's recommendations. The expansion of the Fontana mill is steadily imposing a greater load on the Eagle Mountain locomotive fleet, and about 106 cars a day are now being transported out to the main line.

• No equipment maintenance program is good without excellent segregation of spare parts in warehouse. Robert R. T. Moffett, in charge of Eagle Mountain warehouse facilities, examines parts bin for *Excavating Engineer's* cameraman.

Surprisingly, maintenance on the jaw crushers has not been too great, despite a constant problem of abrasion, lubrication, and jaw plate adjustment. On the first crusher, a 48 x 60 Traylor, abrasion in the discharge throat was combatted by regular hardfacing with bare manganese.

The newly installed Birdsboro 66 x 84 crusher is driven by a 300-hp Westinghouse motor of the slip-ring induction type. It has a Farval enclosed lubrication system, and Scott has even augmented that with an Alemite reservoir which keeps the Farval tank full. The machine has interchangeable jaw plates. A similar crusher at Detroit Dam in Oregon makes the two machines the largest deep frame jaw crushers in the world.

• Construction camp at Eagle Mountain will soon be enlarged by 96 houses. Upkeep of camp is another of Master Mechanic Scott's jobs.

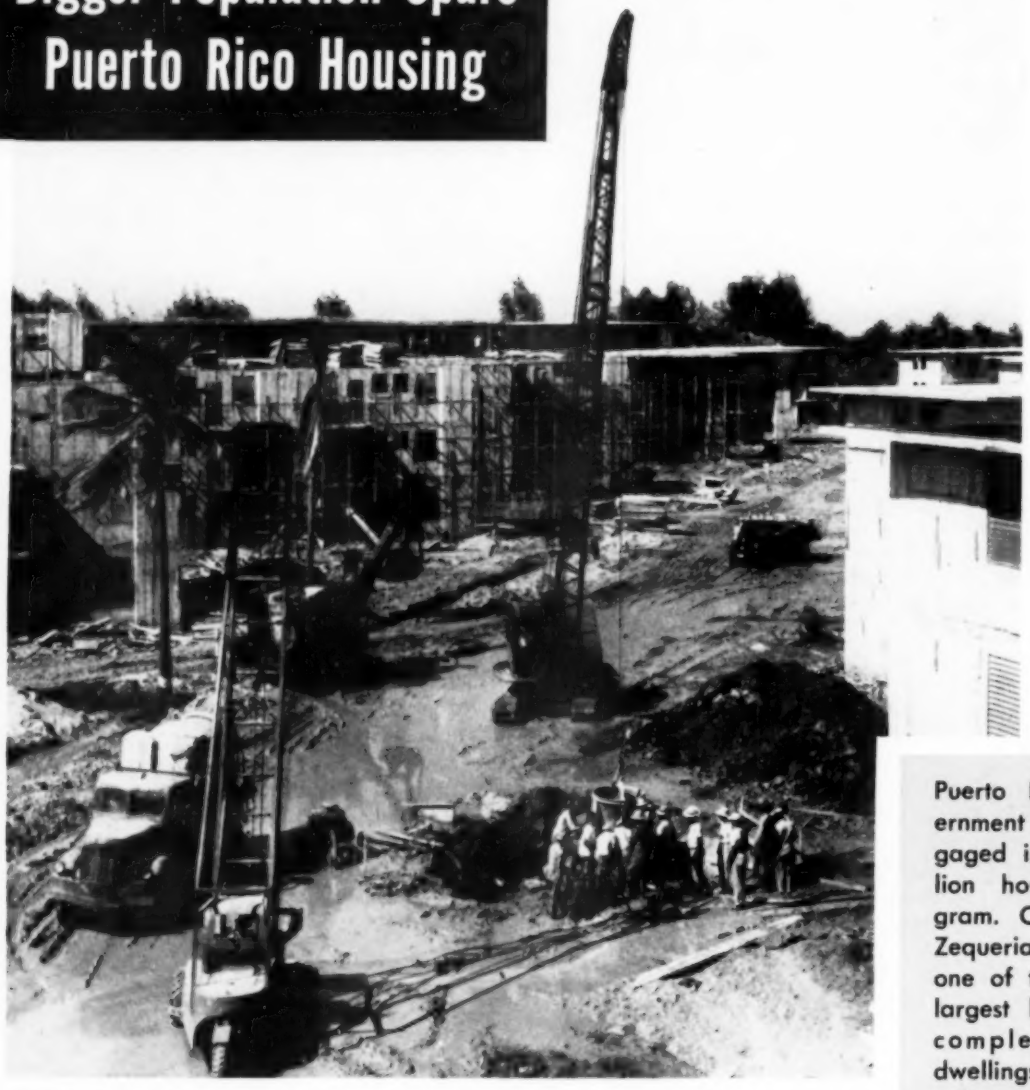
Other Equipment

In addition to the equipment service on these major spreads, there is a host of minor equipment to be maintained also. Drills, several compressors, camp machinery, and even school buses for transportation of school children to Desert Center and Coachella must be maintained. One of the extra-curricular projects now under way is a 96-house addition to the camp. Another is a sewage plant.

The same basic service policies govern the service of small equipment, however, and necessary repairs are made just as promptly. There is just as good a service history on a new Ingersoll-Rand 600-cfm Gyroflo compressor, for example, as there is on the new 150-B shovel. Such valuable information can be built up only by starting these records informally, making work sheets, getting the work done, and entering the results.

Bigger Population Spurs Puerto Rico Housing

by Albert S. Keshen



• Work is well along on this housing project in San Juan, Puerto Rico. Bucyrus-Erie 22-B crawler crane places concrete in manhole for sewage utility. Behind it is another 22-B equipped with dragshovel which is excavating trench.

Puerto Rican government is now engaged in $70 million housing program. Contractor Zequeria & Pinero, one of the island's largest builders, is completing 882 dwellings of 2601-unit project in San Juan as part of government's plan.

WITH an average of 645 inhabitants clustered on each square mile of Puerto Rican soil, the government there is working hard to offset the rising population with a long-range housing program. The Commonwealth of Puerto Rico expects to complete this year the bulk of a $70 million public housing program that was launched in 1950 to provide low-cost dwelling units for some 10,200 families throughout the island.

The five-year-old contracting firm of Zequeria & Pinero figures prominently in Puerto Rico's construction program. Now one of the largest building contractors on the island, Zequeria & Pinero is completing 882 dwellings of the 2601-unit Luis Llorena Torres project in the Hato Rey section of San Juan. San Juan is the island's largest city with a population of 223,949.

The contractor began work on the Luis Llorena Torres project in October 1951. It's expected to be completed in June.

Included in the contractor's equipment fleet are two Bucyrus-Erie 22-B's. Shovel, dragshovel, and 55-ft. boom front ends are available.

Zequeria & Pinero has had a hand in most of the big construction projects on the island, such as the paving of the runway for the airport at Isla Verde. The firm has also worked on the San Jose project at Rio Piedras, which numbers 18,000 dwellings. Zequeria & Pinero is a partnership of Xavier Zequeria and Hector A. Pinero.

The elaborate housing program on the island has been worked out between the Puerto Rico Housing Authority, which serves most of the territory, and the municipal housing authorities of San Juan, Ponce, and Mayaguez.

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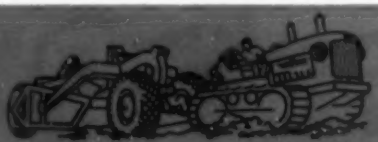
It's the Operators'

BEST BY A DAM SITE. Troy Hood and Jack Rank (shown here with Dirt Foreman Sam Crawford) operate TD-24s for Guy H. James, building the great Oahe Dam in South Dakota. Hood says: "I can keep right behind the scrapers—catch 'em sooner and push 'em out faster because TD-24 controls are easier." And Rank chimes in: "Much easier to handle than any other tractor."

"ALMOST THINKS FOR ITSELF!" That's what Jess Leatherwood says about the Big Red TD-24 he operates for Macon Construction Co., Franklin, N. C. "It pushes more, moves it faster and handles easier than any other crawler I've ever been on."

"WE RIP PLACES YOU'D USUALLY HAVE TO BLAST," says another Macon operator, Roy Cantrell. "We've been working in the Blue Ridge Mountains on rock you couldn't touch with a dozer till the TD-24 came along. Now we blade where we couldn't scratch before, and rip where we used to dynamite!"

"OUR TD-24s REQUIRE LESS SERVICE," says John Tickler, Service Superintendent for John E. Bloomer Construction Co. "These big red machines are very accessible, very easy to maintain. And when we do need help, the International Distributor is always on the job!"



Crawler!

TD 24

Read what the operators and servicemen say about "Big Red", the International TD-24...

"HOW DO I LIKE 'BIG RED'?" asks George Miller. "Listen: This TD-24 is just the fastest and surest handling tractor there is, that's all! Nothing I've seen can touch it for moving dirt." George and his TD-24 move dirt in North Carolina for Kiker & Yount Construction Co.

"GREATEST THING I'VE SEEN," says Bruce Olson (right), TD-24 operator and Sec.-treas. of G. A. Olson Construction Co., Marshall, Minn. "The TD-24 is the easiest crawler of all to operate. The high-low shift is great for whipping around to the cut after dumping the load. It's the fastest equipment going for anything up to a 3,000-foot cycle!" Man in center is Glen Olson, Bruce's brother and company president. At left is Superintendent Donald Young.

Ask the men who know. Ask the operators. They know that *this* makes "Big Red" the Champ:

TD-24 POWER

148 maximum drawbar horsepower, more than any other crawler on the market.

TD-24 SPEED

Up to 7.8 m.p.h. with 8 forward speeds, 8 reverse. Moves loads faster, gets back quicker for more work-cycles per hour.

TD-24 STEERING

Fingertip control for pivot-turns, feathered-turns and *turns with power on both tracks.*

TD-24 STARTING

Exclusive International push-button starting for quick starts any time in any weather.

Want to know more reasons why the Big Red TD-24 is the work-champ of the world?

Ask your International Industrial Distributor. Ask TD-24 operators. Ask the men who know—and you'll be a TD-24 man yourself from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

INTERNATIONAL HARVESTER

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POWER THAT PAYS

News from the Field

Growing Highway Grass by Contract Is Cheaper

Growing grass on highway shoulders to forestall erosion can be done cheaper by contract than by state maintenance crews, the Oklahoma state highway commission has learned.

In an effort to reduce operating expenses the commission picked out some 313 miles of shoulders and asked for bids on sodding and seeding after the job had been estimated it would cost $510,702 for maintenance forces to do the work.

Combined low bids showed contractors willing to perform the task for $397,951 or $112,851 less than the state could do it. Leading road builders submitted 55 bids. State Highway Director C. A. Stoldt says the commission's next new departure in maintenance work will be letting shoulder mowing to contract.

Equipment Distributors Attend Chicago Meet

Associated Equipment Distributors' 34th Annual Meeting broke all records from the standpoints of both volume of registrations and number of projects handled. The meeting, held at the Conrad Hilton hotel in Chicago, Ill. February 1-5, drew 2800 American and Canadian construction equipment distributors and manufacturers.

The business program of the convention centered around four morning business sessions, a special clinic for local association officers and the traditional "Meet Your Manufacturer" session. Added to these full sessions were 19 smaller conferences including three board of directors meetings and 16 committee meetings. This was the heaviest schedule of activities ever attempted at an AED meeting.

In the nominating committee report, the results of mail balloting for directors in even numbered regions of the association were announced as follows:

M. E. Rupp, Region II, Rupp Equipment Co., Buffalo, N. Y.

L. C. Basham, Region IV, West Virginia Tractor and Equipment Co., Charleston, W. Va.

R. J. Finn, Region VI, Bode-Finn Co., Cincinnati, O.

S. F. Laskey, Region VIII, Northwestern Equipment, Inc., Fargo, N. D.

J. A. Benson, Region X, Benson Tractor Co., Houston, Tex.

G. H. Jamison, Region XII, A. H. Cox & Co., Seattle, Wash.

R. E. Corson, Region XIV, Ray Corson Machinery Co., Denver, Colo.

In addition to these men, who will serve two-year terms, J. W. Halls, president of Canadian Association of Equipment Distributors, Consolidated Engines & Machinery Co., Ltd., Montreal, Canada, was named director for a one-year term. Rupp, Laskey, Jamison, Corson, and Halls are new to the board. Basham previously served a one-year term in 1945. Benson has been a member of the board since 1948, and Finn has been a member since 1949.

• Here is 1953 Executive Committee of Associated Equipment Distributors. Left to right: R. J. Finn, vice-president, Bode-Finn Co., Cincinnati, O.; George W. Gagel, vice-president, Machinery & Supplies Co., Kansas City, Mo.; S. John Oechsle, president, Metalweld, Inc., Philadelphia, Pa.; Frank Skidmore, executive vice-president, Contractors Equipment & Supply Co., Albuquerque, N. M.; P. D. Hermann, executive secretary, Chicago, Ill.; and J. W. Halls, vice-president, Consolidated Engines & Machinery Co., Ltd., Montreal, Canada. Missing from picture is F. J. Fitzpatrick, treasurer, Parker-Danner Co., Hyde Park, Mass.

Timken Hits Peak

A. M. Donze, vice president of the Timken Roller Bearing Co., Canton, O., announced that an all-time production record was achieved at the company plants during the month of November, only to be exceeded during the month of December.

Donze said that a total of 242,000 finished bearings were produced for each working day during November. During December, 250,000 finished bearings were produced for each day worked.

Award Contract for Underseepage Relief Work

A contract for the construction of underseepage relief wells in the Columbia Drainage and Levee District and Prairie Du Rocher and vicinity, Monroe and Randolph counties, Illinois, has been awarded to Luhr Bros., Inc., Columbia, Ill. The low bid totaled $172,935.

The current underseepage relief program involves installation of seepage wells to relieve the hydrostatic pressure during floods and thus safeguard the stability of the levees.

Better Rural Roads Is Speaker's Plea

Rural mail carriers travel daily over 1.3 million miles of American highways, school buses use 1 million miles, and half a million miles are covered in milk collection. Ben F. Ostergren, manager of the county and local roads division of the American Road Builders' Association, recently cited these figures in his plea for better rural roads before the Wisconsin Road School in Milwaukee, Wis.

Secondary roads supply the outlets for the products of farms, mines, and forests, he added.

Quoting the Bureau of Public Roads that traffic over country roads was increasing much faster than over primary highways, Ostergren pointed out that much of this new traffic was by truck

• Otis H. Manchester, Jr., Secy.-Treas. of Concrete Transport Mixer Co., St. Louis, Mo., was elected chairman of Truck Mixer Manufacturers Bureau of National Ready Mixed Concrete Association. Manchester was nominated at annual meeting of Bureau, held in December 1952, in Chicago. His term expires in December 1953.

traffic. Some 40% of America's truck registration is on forms.

Failure to spend what is necessary for highway rehabilitation was the reason Ostergren assigned for our present crisis. He declared that the country should be spending twice the $2.5 billion it is now putting into roads and streets each year. To bring the nation's highway system to some degree of adequacy, present sources of funds should be tapped more heavily at all levels, he said.

"Federal-aid may well be increased since the current authorization of $575 million for the next two fiscal years is only about one-third of the $1.8 million collected in Federal automotive excise taxes," Ostergren claimed.

Goodyear Division Counts 40th Anniversary

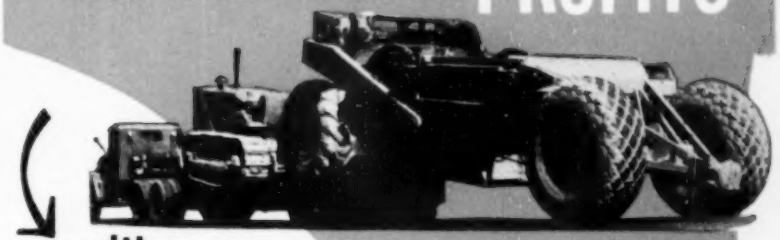
The 40th anniversary of the mechanical goods division of The Goodyear Tire and Rubber Co. was reached recently, marking a milestone in an amazing production record.

Starting February 1, 1913 with four products: balata belting, horseshoe pads, rubber tiling, and soles and heels, this division of the largest rubber company in the world is now producing 20 major categories of products in the industrial rubber goods field with more than 20,000 different specifications for manufacture.

Products of the division range from air seals for aircraft carburetors with circumferences no larger than the head of a match to press pads weighing in excess of a ton. The greatest volume of production is in hose and belting.

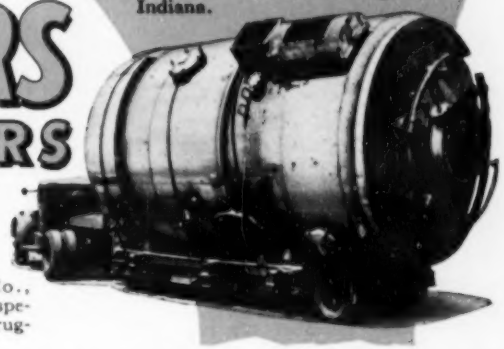
In the beginning, the total production and sales force for the division was less than 150 persons. There are

"Plus" Payloads for GREATER HAULING PROFITS



...with ROGERS TRAILERS

Photo: Courtesy of Ralph Myers Construction Co., Bloomington, Indiana.



The job of hauling this 32-ton Electric Precipitator from Cressona, Pa., to Pottsville, Pa., was taken in easy stride by the Moore-Flesher Hauling Co., Pittsburgh, Pa., with their specialized knowledge and their rugged Rogers Trailer.

Hauling "Plus" Payloads without overloading is not only a possibility, but a relatively common practice by enterprising hauling contractors who rely upon the sturdy backbones of their Rogers Trailers to withstand heavy, bulky loads under strenuous operating conditions.

It's just one of the many reasons why Rogers has been privileged to serve a larger number of "repeat order" customers since the year of 1915 when the first trailer was built.

We'll be glad to discuss your particular handling problem in terms of trailers that will best suit your needs and your pocketbook. Call, write or wire your agent TODAY

This is the Sign of the Original and Genuine ROGERS TRAILER

This nameplate appears on every ROGERS TRAILER as your assurance of the GENUINE PRODUCT—Made Since 1915

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EXPERIENCE builds 'em PERFORMANCE sells 'em

ROGERS BROS. CORP.

ALBION, PENNA. CABLE: BROSITES

136 ORCHARD STREET

Also of timely interest is this ROGERS Tag-A-Long trailer which makes a dump truck serve as a tractor and effects sizeable savings for contractors.

Export Office: 50 Church St., New York 7, N. Y., U. S. A. Cable Address: Brosites

more than 5000 persons employed in the division now.

Greatest popular achievements of Goodyear's mechanical goods division have been made with conveyor belts. The company holds 14 of the 16 world's records in that field.

Among the records is the world's longest conveyor belt system built at Shasta dam, the world's highest lift belt which is operating in an Illinois coal mine, and the world's longest single flight conveyor belt which is operating in a tunnel through a mountain in West Virginia.

Goodyear engineers designed the Lake Erie to Ohio River conveyor belt system, known as Riverlake, and created plans for a complete passenger conveyor belt system. Both projects are under consideration by legislative bodies in Ohio and New York City.

Apparatus May Save Lives of Florida Miners

In keeping in step with its policy of employing the latest safety measures, the Florida Phosphate Division, International Minerals and Chemical Corp., recently acquired a new portable apparatus for automatically administering artificial respiration.

Termed the Pneolator, the new apparatus could play a big role in saving lives of Florida Division employees who fall victim to electrical shock, suffocation, water accidents, heart attacks, and other breathing stoppages.

• L. B. Walker (left) of Florida Phosphate Division's industrial relations department, acts as operator while Charles F. Sumner, suction tender, poses as patient in demonstration of new oxygen apparatus.

Since the Division's operations are spread out, its employees are usually far from hospitals and medical aid stations.

The Pneolator is a compact, self-contained instrument that is capable of being carried by one man. At the Florida Phosphate Division site the Pneolator is kept in the safety supervisor's car, ready for instant use when the need arises.

Oxygen is administered by the "intermittent positive pressure" principle —fed to the victim's lungs in the right amount and pressure, then cut off to permit natural recoil of the chest and diaphragm to induce exhalation. This suction-less exhaling feature has been praised by oxygen therapists, who say forced exhalation may further damage injured lungs in many types of accidents or disease.

The special valve which constitutes the "heart" of the Pneolator is the outgrowth of World War II development work at the Aero-Medical Research Laboratory of the U. S. Air Force. Aviation scientists perfected the valve in their efforts to provide means for administering oxygen to "blacked out" air crewmen.

When a victim resumes breathing voluntarily, the Pneolator automatically changes its function—becomes an inhalator, supplying oxygen on the patient's demand. Controls permit setting oxygen flow and pressure for the individual victim's requirements.

An automatic signal is incorporated in the instrument to warn the operator if the patient's lungs are not getting oxygen; when air passages, for instance, are blocked by bits of food, the valve chatters sharply.

The Pneolator is manufactured by the Mine Safety Appliances Co., Pittsburgh, Pa.

• Flanked by F. P. Stratton, general sales manager, and E. V. Oehler, vice-president in charge of sales, C. L. Coughlin, president, places placard to formally symbolize Briggs & Stratton's latest achievement in building, selling, and shipping more than 1 million industrial gasoline engines in 1952. "Record" engine for Milwaukee, Wis. firm was 5 hp model 14.

Propose New California Water Financing System

Authorization of a $1 billion California revenue bond issue to permit the state to underwrite local water projects is proposed by a bill introduced in the state legislature by Senator Jesse M. Mayo of Calaveras County.

The proposed legislation would exclude the federal government from local water development in California, Mayo said. He declared the measure is needed because areas having the greatest amount of water resources often are sparsely populated and are unable to finance development of local water, irrigation, flood, and power projects.

If approved by the legislature, the bill would place a $1 billion revenue

Continued on page 49

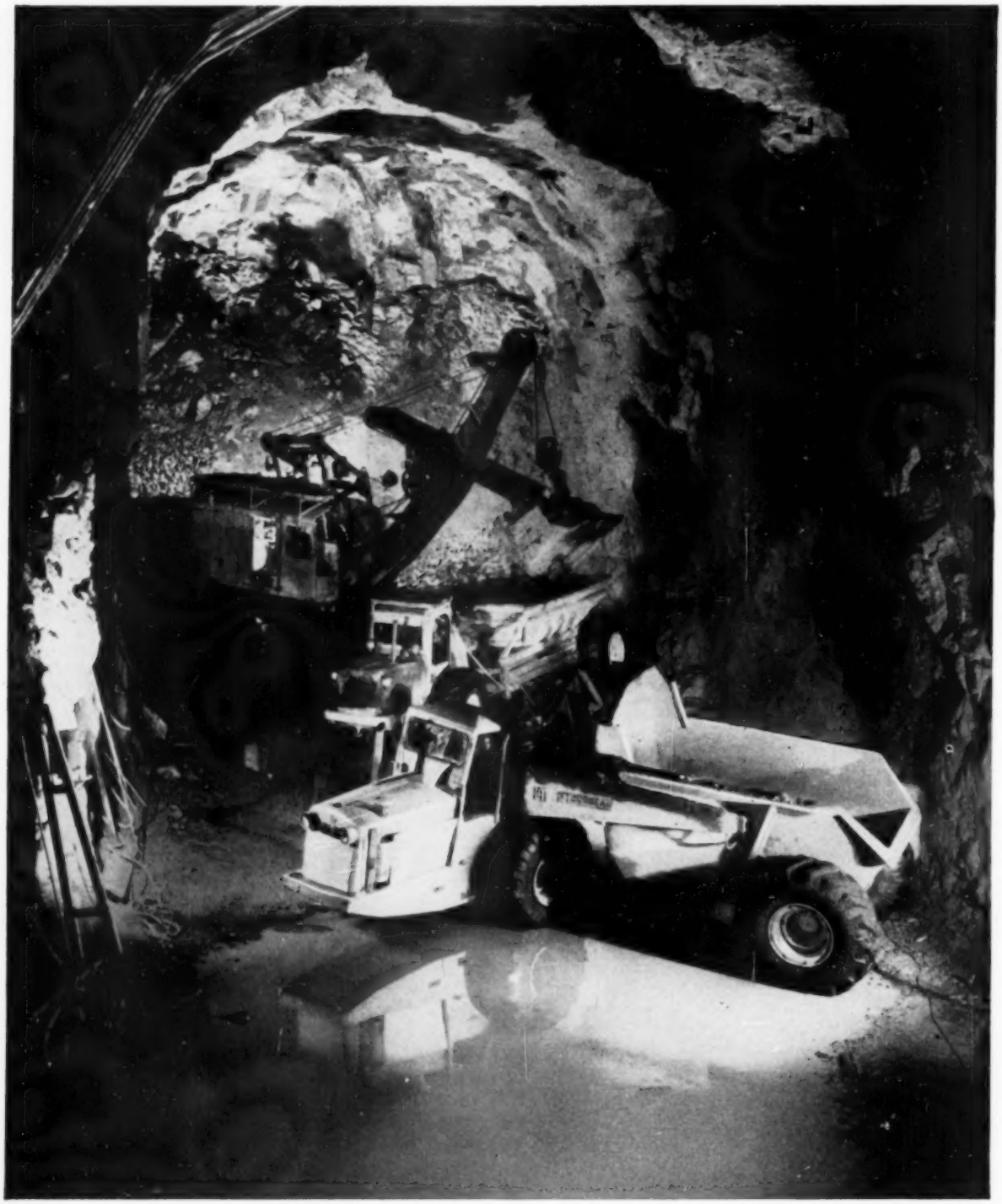
LeTourneau pictures of the month . . .

MINES IRON AT 30° BELOW — 215 miles north of the Arctic Circle at Kirkenes, Norway, 2 C Tournatractors work 24 hours a day, 365 days per year. Their task, vital to the Norwegian defense effort, includes shovel clean-up and haul road maintenance in one of the largest open magnetite pits in Scandinavia. Some 2,300,000 tons of ore are being removed annually The pit is 350 ft deep. Despite the grades, subzero arctic weather and abrasive material, Tournatractor efficiency has been very high. Rig's tires have required no repair. Greasing, required only once every 10 shifts, can be done in about 15 minutes. Overall maintenance needs are low. Equipment owner is Sydvaranger A/S of Oslo, leading European contracting firm.

CARRIES 50 TONS PER LOAD — Here hard at work in the Pennsylvania anthracite fields is one of Colitz Coal Co.'s three 50-ton Tournarockers. Behind a 450 hp butane engine, these rigs carry 41 pay yards per load. They are 36 ft long overall, yet turn in a radius of 15 ft 8 in. With Tournarockers, you can forget many of your old rear-dump troubles. These rigs have no frame, sub-frame, springs, tie rods, or hydraulics. Electric push-buttons control steer, dump, shift.

See next page

LeTourneau pictures of the month (cont'd) . . .



DIG 2.9-MILE TUNNEL THROUGH SOLID ROCK

These rigs are not toys. That's a 2¼-yd shovel, loading one of six 18-ton LeTourneau haul units used on this job. They are digging a sloping 2.9-mile-long, 40-ft high tunnel through tough, sharply-fragmented gneiss-type rock to connect two lakes in Sweden. The fall of water through the tunnel from one lake to the other will provide electrical power. Tunnel is only 36 ft wide, yet Tournarockers turn around easily in one continuous sweep. Loads average 18 tons each. Production averages 36 tons hourly over typical 2¼-mile cycles. Digging is so tough that only 20 lineal ft of tunnel is opened per day. "In spite of severe conditions, repair and maintenance costs have been very low," says S. Westby, chief engineer on the 785,000-yd project, one of the largest ever contracted in Sweden. "Tournarocker's greatest advantage is its maneuverability and short 13 ft 9 in. turning radius."

Performance reports on LeT equipment in action

HUNTS OIL IN 150° HEAT — 250 miles from the nearest oasis, this Tournadozer is really getting a rough workout. Used by the Iraq Petroleum Co. exploration crews in eastern Arabia, it prepares drill locations, levels camp sites, and builds haul roads. Rig works 10 to 18 hrs a day in temperatures which hit 150° in the daytime, then drop to 35° at night. Material is mostly desert sand with occasional outcroppings of coral and sandstone. Only servicing required in the past year has been routine weekly inspections.

MINES SHALE IN TEXAS — By mining 250 tons of slacked shale daily with their self-loading D Tournapull, Acme Brick Co., Fort Worth, Tex., cut man-hour requirements 75%. Single "D" replaces a dump-truck and front-end loader. It handles in 4¼ hrs the same job that formerly took 17 man-hrs to complete. "D" self-loads 5 bank yds of shale, hauls 0.4 mile to crusher bin, dumps and returns to pit in 4.5 min. Performance here led to purchase of 3 more units for other Acme pits in Malvern, Ark, Clinton, Okla, and Baton Rouge, La.

DRIVES 755 MI IN 34 HRS — Rogelio Viesca, Mexico City contractor, recently took his rubber-tired Tournapulls on a long journey. Rigs drove over paved highways, through cities and towns, and across 8,000-ft mountains to reach Mexico City from Laredo, Texas. They made the 755-mi trip in 34 hrs, total driving time (an average of 22 miles an hour) . . . went to work on construction of a new spur line for Pemex Oil Co. the day they arrived at the job site.

WORKS UNDER WATER — Tournapull wades across 5-ft river on the way from Panama City to Pan American Highway job near David on the Costa Rican border. Though water covered generator, rig's electric controls were not affected, reports Owners Vallarino & Arias. That's nothing unusual, though. Water never stops the LeTourneau electric motors or generator. One motor, operated underwater for 4 yrs as a test, still runs as well as ever.

See next page

LeTourneau pictures of the month (cont'd.) . . .

6000 HRS, 90% EFFICIENT — All feeding for this portable asphalt plant, run by Miss. State Highway Dept at Hattiesburg, is handled by Tournatractor. Plant output averages 770 tons per 9-hr day. After 3½ yrs (over 6,000 hrs) work in sand and gravel, rig has been 90% efficient . . . still has original tires. "Haven't had a minute's trouble with them," says Plant Supt Grady McCardle. Tracks would have needed at least 5 or 6 complete overhauls during same period.

7 JOBS IN 10 HRS — In Minn the Coons Co. handles scattered jobs with Tournatractor. In a typical 10-hr shift, rig maintains 2 overburden dumps, stockpiles lean ore, cleans up for 3 shovels, maintains haul roads.

BEATS WINTER SHUTDOWN — Frank Whitcomb works his 2 rear-dump Tournarockers 12 months a year. In New Hampshire, where he does most of his work, temperatures often drop well below zero. But no matter how cold it gets, Tournarockers dump any material that can be loaded. Electrical induction body heating keeps loads from freezing. When unheated trucks have to be used under similar cold weather conditions, they must be cleaned out by a small pull shovel.

3½-MINUTE MILE — Lehigh Portland Cement Co, Albany, NY, uses this D Tournarocker to haul waste. Unit loads 12 yds, hauls 1 mi to dump in 3½ min. With front-wheel drive, Tournarocker backs safely to edge, dumps clear over bank. Saves expensive cleanup.

"VERY FAST AROUND A SHOVEL" — Stripping year-round for Diamond Portland Cement Co, Ohio, Tournatractor breaks up and dozes 15 to 18" of shale to shovel. As needed for cleanup, machine runs 3 miles to plant or drives into pit for shovel service. Operator Elon Gallineau says, "This machine is dynamite!" Plant Mgr E. R. Evans says, "Rig will move as much shale in half a day as our crawler can in a full day."

R. G. LeTOURNEAU, INC., PEORIA, ILL.

LETOURNEAU LET EQUIPMENT

Tournatractor—Trademark. Tournarocker, Tournaputt—Trademark Reg. U. S. Pat. Off. Pic. 310-M

Continued from page 44

bond issue on the November, 1954, election ballot. The bonds would be used as security against issuance of bonds on any local project approved by the State Division of Water Resources, the state engineer and the State Department of Finance. Effect of the state bonds would be a guarantee that the local water project was financially and engineeringly sound.

Appoint District Engineer

H. G. Wood has been appointed district engineer of the Columbus, O. office of the Portland Cement Association effective immediately. Wood succeeds N. O. Wagner who has resigned.

Wood joined the staff of the Portland Cement Association in 1937 as a field engineer for the Columbus office. Ten years later he was promoted to statewide paving engineer, the position he held at the time of his new appointment. As district engineer of the Columbus office, Wood will direct Association activities in Ohio and West Virginia.

Release New Film

Dravo Corp., Pittsburgh, Pa., has completed a new 30-minute, 16-mm sound film in color documenting many of the firm's diversified activities. Entitled *Portrait of an Enterprise*, the movie typifies modern American industrial engineering firms.

In the film are on-the-job scenes of heavy construction projects, river locks, dams, and bridges. Construction of a central station power plant and a gas transmission line compressor station are depicted.

The film is available without charge for showing to engineering groups, schools and colleges, and other interested organizations. Write to Advertising Department, Dravo Corp., Neville Island, Pittsburgh 25, Pa.

Pa. Constructors Elect Bazley President

J. Robert Bazley, president of J. Robert Bazley, Inc., Pottsville, Pa., has been elected president of the Associated Pennsylvania Constructors, state-wide organization of Pennsylvania's highway and heavy construction industry. Bazley was installed at the Association's 31st annual convention in Atlantic City, N. J., January 10.

Before his election Bazley served two years as vice president of the group. He succeeds William O. Faylor, president of the Middlecreek Construction Co., Middleburg, Pa., who has become chairman of the Association's advisory board.

• The Associated Pennsylvania Constructors recently elected J. Robert Bazley their president.

Bazley entered business in Pottsville following his graduation from the University of Michigan in 1911. His firm conducts one of the largest coal stripping and road building operations in Pennsylvania.

On two occasions the British government called Bazley to England to advise officials on coal mining operations. In recognition of his experience in coal stripping he has been named to several committees of the American Mining Congress.

Bazley will also serve on the board of directors of the contractor's division of the American Road Builders' Association.

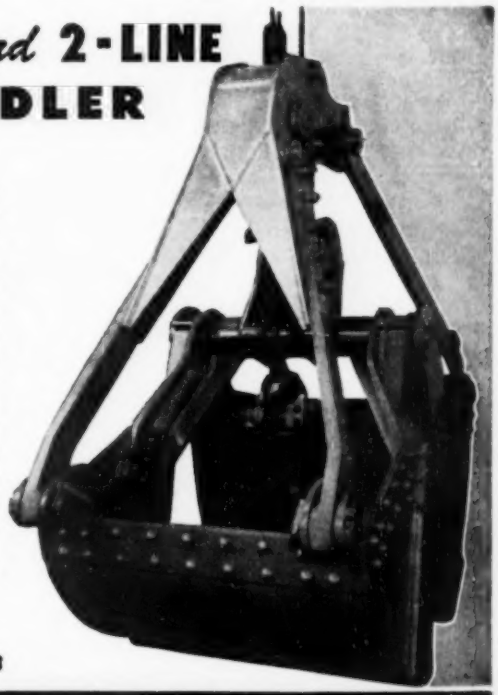
Active in civic affairs, Bazley has been president of the Pottsville hospital, a director of the water company, and vice-president of the Miners National Bank.

Named to his eighteenth term as executive-secretary is A. E. O'Brien of Harrisburg, Pa.

Highway Research Award Goes to H. S. Fairbank

Herbert S. Fairbank, deputy commissioner of the U. S. Bureau of Public Roads, was recently awarded the Roy W. Crum Award for Distinguished Service at the thirty-second annual meeting of the Highway Research Board in Washington. The award is presented annually in recognition of

ERIE *Standard* 2-LINE REHANDLER



THIS compact Lever Arm Rehandler Bucket of normal proportions has ample closing power to fill to capacity in compact materials, and is so designed that the reeving can be adjusted to obtain maximum speed with capacity grabs in loose materials. We have reduced the "height open dimension" thus requiring minimum headroom, enabling you to pile higher and to discharge into higher hoppers. Lighter weight alloy construction provides more pay load (scoop contents) less bucket dead weight. To see this bucket in all detail write for bulletin 403.

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ERIE BUCKETS • *A Complete Line*

Erie Steel Construction Co., 266 Geist Rd., Erie, Pa.

BUCKETS • AGGREMETERS • PORTABLE CONCRETE PLANTS

"outstanding achievement in the field of highway research."

Fairbank has been deputy commissioner in charge of all research for the Bureau of Public Roads since 1943. He has directed a large research program independently and in cooperation with state highway departments and universities.

In 1949 Fairbank served as vice chairman of the U. S. Delegation to the United Nations Convention on Road and Motor Transport in Geneva, Switzerland. He has been active in the work of the Highway Research Board since 1943 and is currently serving as chairman of its department of economics, finance and administration and of the Highway Research Board committee on economics of motor vehicle size and weight.

States Work on Toll Road Programs

Legislation effecting broadened toll highway financing and construction is under consideration in the legislatures of at least 22 states. Proposals for the financing and construction of new or extended toll highway facilities are in various stages of preparation in at least 13 states. Toll road construction is currently in progress in six states—New Jersey, New York, Ohio, Oklahoma, Pennsylvania, and West Virginia.

Here is a summary of current developments in the toll road field on a state-by-state basis:

Ala.: Alabama's legislature will be asked to appropriate funds for surveys to determine whether there is traffic to warrant toll highways. A $100 million toll highway from Decatur through Birmingham to Mobile was unsuccessfully proposed in the 1951 legislature.

Ark.: A proposed study by state legislative council to determine the feasibility of toll roads.

Calif.: Bill proposes the creation of a state toll highway authority to issue bonds for the construction of toll highways.

Colo.: State highway commission is studying plan for construction of an all-weather highway tunnel under Loveland pass as a toll road project.

Conn.: Bill would authorize issuance of $135 million in revenue bonds to finance construction of the Fairfield County Throughway, from Greenwich to West Haven. Another bill provides for the establishment of a state toll road authority to finance and construct toll highways. An all-purpose toll highway across eastern Connecticut, from New York to Rhode Island, with a branch north from New London to Norwich, is also proposed.

Del.: State highway commission advocated legislation for construction of a toll highway linking the Delaware Memorial Bridge with the Chesapeake Bay Bridge.

Fla.: Awaiting decision is the question whether to proceed with proposed toll highway financing and construction. A report to the Florida state improvement commission said a proposed 313-mile toll superhighway from Jacksonville to Miami would be economically feasible and recommended it be started with a $180 million bond issue. Members of outgoing commission recommended to the new administration that full turnpike project be started. The whole undertaking, including the Tampa Bay area branch, would call for a $255 million bond issue.

Ga.: A bill would repeal a 1952 state law authorizing a toll superhighway between Cartersville and the Tennessee line. Plans were shelved after two consulting engineering firms reported there is insufficient traffic to finance it.

Ill.: Governor Stratton asked the legislature to give serious consideration to constructing super or specialized traffic highways to be financed by tolls paid by actual users. Proposals mentioned in Illinois include a St. Louis-Chicago toll road running east of Route 66 equidistant between such cities as Joliet-Kankakee, Champaign-Bloomington, and Springfield-Decatur.

Ind.: Construction of 150-mile toll superhighway across northern Indiana may be started by early summer of 1954. A link in a chain of toll turnpikes carrying traffic between New York and Chicago, the superhighway will connect on the east with the toll highway now being constructed across northern Ohio.

Iowa: A joint resolution proposes creation of a state legislative interim committee to study the feasibility of an east-west toll road across the state.

Kans.: Governor Arn asked the legislature to create a state turnpike authority to finance construction of toll roads through bonds.

Ky.: Discussions planned with Ohio officials concerning the possibility of a Toledo - Cincinnati - Louisville - Nashville turnpike, with a spur through Lexington to the south. At Louisville, the road would connect with a proposed 40-mile, $22 million toll turnpike running south to Elizabethtown.

Maine: State turnpike authority plans $75 million in bonds to refinance its present outstanding debt and to finance extension of turnpike from Portland north to Augusta.

Md.: Partial financing of some highways by tolls, possibly to the extent of $50 million, is under consideration.

Mass.: State toll highway authority announced continued study on east-west cross-state toll highway project.

Mich.: Toll road enabling legislation to be considered by legislature.

Minn.: Commission will study possibilities of toll road.

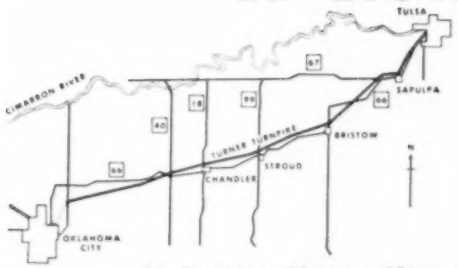
Mo.: Governor Donnelly asked the

"Now I'd like you to look at our free-swinging undercarriage."

Turner Turnpike in final stages of construction shows how it aims for horizon with arrow-like straightness. Right-of-way is 200 to 400 feet wide. Grades are maximum of 3 percent.

Performance on the Turner Turnpike makes the Allis-Chalmers AD-40 Grader

A New Regular for Gillioz



One of the most modern highways in the Southwest will soon connect Oklahoma City and Tulsa, Oklahoma. Twin 24-foot roadways will save travelers almost a full hour of driving time on this 88-mile stretch; 12-foot paved shoulders, slight grades and long curves will make driving easier and safer, too.

M. E. Gillioz, Monette, Missouri, was awarded three Turner Turnpike contracts, each for clearing and grading. Gillioz, with half a century of experience in earth moving, has one of the largest contracting organizations with one of the biggest fleets of A-C tractors in the area. And now there's a new regular in the Gillioz fleet — an Allis-Chalmers AD-40 motor grader.

The AD-40 proved to Gillioz on his Turner Turnpike jobs that it represents real progress in motor grader design. His operators could see front wheels and both ends of the blade well because (1) A-C's single-member frame goes from front axle to platform; (2) front platform corners are tapered; (3) lift cases are small, (4) control box is low, and assemblies have been eliminated from the front panel to provide best possible visibility of the work area directly ahead of the operator. Low center of gravity made the new grader ideal for sloping operations, too.

Gillioz men also like the operating comfort built into the AD-40. It has ample leg room for stand-up operation. And for easy, comfortable sit-down work, the AD-40 has a seat that rolls forward at a touch plus an adjustable-height steering wheel.

These advantages teamed up with a new kind of power steering and outstanding service simplicity to make the AD-40 a new regular for Gillioz. It will pay you to consider putting this job-proved grader on *your* team, too. See your nearby Allis-Chalmers dealer soon for all the facts.

ALLIS-CHALMERS
TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

Allis-Chalmers AD-40 finish grades one stretch of the new turnpike. The completed highways will be divided by 15-foot landscaped center mall.

An HD-20, one of the Gillioz fleet of ten Allis-Chalmers torque converter tractors, sends a rubber-tired scraper off to the fill with a flying start.

legislature to consider toll road enabling legislation.

Nebr.: Plans for introduction of a toll road enabling act were announced.

N. H.: Report by the state department of public works outlines a possible $40 million toll superhighway program for central and eastern New Hampshire. Plan envisions a 40-mile limited access highway from the Massachusetts border to Concord, as well as an extension of the present New Hampshire Turnpike from Portsmouth to Rochester.

N. J.: A financing authorization obtained by the New Jersey turnpike authority from its bondholders gives the agency permission to proceed with the financing of the extensions which were legislated. The New Jersey highway authority, a separate agency, is proceeding through temporary financing with the construction of the Garden State Parkway as a toll earning facility.

N. Mex.: A bill would authorize state highway commission to build toll roads. Commission Chairman Ralph Jones has expressed doubt, however, that toll roads would be feasible at present because of insufficient traffic.

N. Y.: Bill is pending to permit the Jones Beach state parkway authority to impose a 10¢ toll on the Southern State Parkway to finance a $40 million parkway improvement program in Nassau county. The State Thruway authority is proceeding with construction of the New York State Thruway. A 150-mile section of the thruway will be open to traffic between Utica and Batavia by next January, with tolls on that stretch as soon as it is completed. The construction of four spurs is planned. These will run south of Albany to the Massachusetts border, from Buffalo to Niagara Falls, from Buffalo to the Pennsylvania border, and from the Bronx to the Connecticut border.

N. C.: State turnpike authority is engineering studies on a new toll superhighway. A planning schedule calls for marketing some $200 million in bonds to permit a construction start in fall. Now being awaited is engineering data on a proposed turnpike running from the Gastonia area, through the Charlotte area and west of Winston-Salem to the North Carolina line near Mt. Airy. Engineering data then will also be sought for a second possible route, which would connect with the Piedmont route and extend through the Greensboro area to the Raleigh-Durham area.

"That's what I told him, but it's a new bulldozer and he doesn't want to nick up the blade!!"

Ohio: While construction proceeds on the $326 million Ohio Turnpike, which will run 241 miles from the western terminus of the Pennsylvania Turnpike across northern Ohio to the Indiana line, consideration is being given to the possibility of a branch from Toledo to Cincinnati.

Okla.: April 17 is tentative opening date for the new Oklahoma City-Tulsa toll superhighway.

Pa.: While the State Turnpike Commission proceeds with the construction of a $65 million, 33-mile Delaware River extension of the Pennsylvania Turnpike, Governor Fine suggested extension of the turnpike to northeastern Pennsylvania.

R. I.: Legislature will consider the possibility of toll roads.

Tenn.: Toll road enabling legislation is expected to be considered.

Tex.: Legislative proposal calls for creation of a Dallas-Fort Worth turnpike authority to finance a $31 million toll highway between the two cities. Other reports include plans of the recently-chartered Sam Houston Turnpike Corp. for construction of a $150 million, 276-mile toll highway from the Dallas-Fort Worth area to San Antonio.

Va.: Engineering studies are being made on the feasibility of a toll highway from north of Richmond to south of Petersburg, and the toll road potential in the Washington metropolitan area of Virginia. The state corporation commission granted the Old Dominion Turnpike Corp. a one-year extension from Feb. 20 in which to start construction of its projected 70-mile toll highway across southwest Virginia. The project is expected to cost between $60-$70 million.

Wash.: Construction of a 70-mile toll highway from Tacoma to Everett, and passing through Seattle, has been advocated.

W. Va.: State Turnpike Commission is studying the most suitable entry into Virginia when the time comes for extending the two-lane toll expressway now being constructed between Charleston and Princeton.

Wis.: Legislation providing for a study of a cross-state toll superhighway was recommended by Governor Kohler.

Report Parkway Gains

A story of record-breaking accomplishment in the early construction

SMALL *Dumpers earn* BIG *Money!*

Check up on the British-built

Muir-Hill 3 cu.yd. Dumper

It's two for the price of one where operating costs are concerned—plus extra mobility, extra adaptability, particularly where elbow room is short. You operate these Muir-Hill Diesel Dumpers in teams—the patent two-way point-to-point dumping saving time, saving wear, saving space. Our promotional matter is good reading and fully illustrated. Let us mail you copies now.

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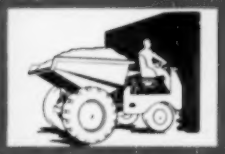
✓ Easy to spot all-steel body has instant gravity dump and [illegible]

COMPACT DIMENSIONS

✓ Track 5' 5½", Wheelbase 6'8½", Body Height 6'1¼" Turning Circle 26 ft. Goes anywhere!



FOR LOADS WITHOUT ROADS

✓ High ground clearance, low centre of gravity, correct weight distribution, ample power and multi-speed gearboxes—they keep on going anywhere!

Tens of thousands of Muir-Hill Dumpers are working in all parts of the world. Other Muir-Hill Machines are 4½ cu. yd. Dumpers Loaders, railroad Shunters.

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stages of the Garden State Parkway is documented in the New Jersey Highway Authority's first annual report. It discloses that over $8 million of construction was placed under contract during the Authority's first six months of operation, July 2 to December 31, 1952.

As a result of accomplishments to date, the Authority plans to place the entire Parkway under grading contracts by June. Paving is scheduled to start in August. Completion of the entire 165-mile route is anticipated by the summer of 1954 with the north shore section through Middlesex and Monmouth counties opened within the next twelve months.

McDermott Co. Launches Second Dragline Barge

The J. Ray McDermott & Co., Inc., Harvey, La., added a second dragline barge to its marine fleet with the launching of the "Ralph T. McDermott" in January.

The dragline barge is a sister ship to the "A. H. Stall," launched in December 1950. Both barges were built by Avondale Marine Ways, New Orleans, La. and outfitted at McDermott Docks. (For article on operations of first barge-dragline unit see *Excavating Engineer*, August 1952, page 12. "A Walker Takes to the Swamps.")

Miss Frances Lenora Stall, daughter of A. H. Stall, vice president of McDermott Co. christened the new barge. The dragline unit is powered by a 550 hp Diesel engine capable of handling an 8-yd. bucket. The ordinary bucket capacity is six yards and has a 24-hour average digging capacity of 15,000 yards.

Walking shoes on the dredge make it possible to move onto the bank if necessary. The dredge is also outfitted with a tag-line unit which moves the barge during digging operations and prevents excessive turning and swinging of the bucket.

Fuel tanks have a capacity of 50,000 gallons of Diesel fuel and the drinking water tanks will hold 10,600 gallons. A 10-ton air-conditioning unit is installed below deck.

A unique feature of the dredge is a club room furnished with platform, chairs, radio, television, and writing desks. Two-way radio can be maintained with company's offices ashore.

• Miss Frances Lenora Stall christens dredge "Ralph T. McDermott." Miss Stall is daughter of A. H. Stall, vice president of J. Ray McDermott & Co., Inc. Dragline barge is second such unit built for McDermott Co. in last two years.

Sign $15 Million Contract with Haiti Government

Brown & Root, Inc. of Houston, Tex. has signed a contract for about $15 million with a governmental agency of Haiti for the development of the valley of the Artibonite river for irrigation.

I. N. Towne, Brown & Root's vice-president in charge of foreign operations, said the work will be started immediately and the job will require from three to four years to complete. The Haitian governmental agency is the Organisme de Developpement de la Vallee de L'Artibonite.

The work will consist of a concrete dam 1500 feet long and will also include the canals necessary for irrigation of about 110,000 acres of land. The dam will be located on the upper reaches of the river in the vicinity of Las Cohovas, near the boundary of the Republic of San Domingo.

Engineers for the Haitian Government are Knappen-Tippets-Abbett and McCarthy of New York, N. Y. Brown & Root's project superintendent will be Howard Payne of Houston.

U. S. Engineers to Help Aussies Build Tunnel

W. A. Dexheimer and A. B. Reeves, Bureau of Reclamation engineers, are en route from Denver, Colo., to Australia on special assignment to assist the Snowy Mountain Hydroelectric Authority carry out Bureau-prepared designs and plans for Australia's Adaminaby Tunnel, the longest and largest irrigation tunnel in the world.

The 14-mile long, 21-foot inside diameter tunnel—part of the billion dollar Snowy Mountain development in southeastern Australia between Canberra and Melbourne — will be more than twice as large as the 13.1 mile long, 9-ft. diameter Alva B. Adams Tunnel on the Colorado-Big Thompson Project in the United States, now the world's longest.

The Snowy Mountain water resources development ultimately will provide 2.8 million kilowatts of hydro capacity and an increase of 2.1 million acre-feet of irrigation water for Aus-

Get Better Bit Heating Service with this

New Style Oil Fired Furnace

A real one-two punch for top bit production — heating bits in a Model 4554 furnace, for redressing in the No. 12 bit dresser at the right. This picture was taken in the machine shop of a Minnesota mining company.

If you're a mine or quarry operator looking for high production of dressed bits, you'll find Bucyrus-Erie's newest bit heating furnace (the Model 4554) will fill a definite need in your bit dressing shop. This unit, fired by two double atomizing oil burners, will not only heat your drill bits for redressing more efficiently and at lower cost, but will also prolong their life. Here are a few of its important features:

Individual Preheat and High Heat Chambers for two-stage heating of bits. Two preheat chambers (approximately 1500° F) provide slow heating of cold bits and reduce danger of rupturing the steel. After adequate preheating, the bit is placed in the high heat chamber (2250° F) where it is heated rapidly — the result of the high velocity of hot gases surrounding the bit.

Uniform Bit Heating because the whirling action of hot gases on the bit provides rapid heat transfer while applying equal heat from all sides. There is no need for operator to turn bits in the furnace.

Controlled Furnace Atmosphere keeps decarbonization of the bit steel at a minimum. Three factors make this possible:

1. Adjustment of the air-oil proportioning valve permits a selection of air and oil ratio to attain a non-oxidizing atmosphere in the furnace.
2. The double atomizing oil burners thoroughly atomize the oil to assure complete combustion.
3. Gas pressure inside the furnace is slightly higher than atmospheric pressure to seal out external air.

WHY not investigate the many other money-saving advantages that this new style furnace holds over older oil fired types? Write us today for complete details — and ask for a copy of bulletin BF-1.

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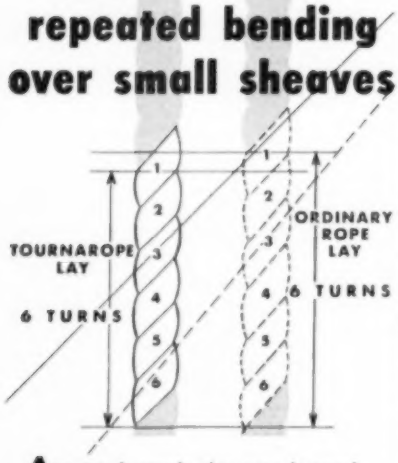

Any pre-formed wire rope is good. Pre-formed Tournarope is better because it has a 7% shorter lay.

That means Tournarope has more *twists* per foot than ordinary wire rope. As a result, you get more *steel* per foot and greater strength.

Longer life

Although built with a flatter twist that forms a harder structure, the 7% shorter lay gives Tournarope greater flexibility. Because of these features, Tournarope:

1. rolls easier over small sheaves;
2. withstands abrasion and bending fatigues;
3. resists kinking;
4. spools easily and smoothly;
5. handles easier.

Lower rope costs

All these plus values add up to longer life for Tournarope. But it costs no more than ordinary wire rope. Consequently, your annual rope costs will be lower.

Find out for yourself. Try Tournarope the next time you replace wire rope on any of your equipment. Send us the coupon giving name, title, and address of the man who buys your wire rope. We'll be glad to send descriptive literature.

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Tournarope Division
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Please quote on.....feet of.....inch diameter Tournarope..... .....lay, ... construction .....type, ...core, for ..... service on ..... to:
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Company .....
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City, State.....
Date .....Signed .....

tralia's national economy. Although requiring at least 20 years for completion, early phases of construction are being rushed to relieve a critical power shortage for cities and industries in Australia.

Dexheimer, who is Reclamation's assistant chief construction engineer, and Reeves, chief of the canals branch, will consult with Australian engineers and bring plans to final form so that invitations may be issued this spring for contractors to bid. The Snowy Mountain Hydroelectric Authority, hoping that the biggest American contractors will be among the bidders, is scheduling construction work to begin next October for the three features designed in Denver—Adaminaby Tunnel, Tumut Pond Dam, and T-1 Tunnel at a total cost of about $40 million—and for a 320,000 kilowatt T-1 underground power plant designed in Australia.

Designs and specifications for a 300-foot concrete dam and other engineering features of the Snowy Mountain development also were prepared by the Bureau of Reclamation with the assistance of Australian engineers at the Denver Engineering Center, in accordance with an agreement between the United States and Australian Governments executed in November 1951. This formal agreement provided that the Bureau would furnish technical assistance in the accomplishment of what is probably one of the largest water development plans now under construction in the world, through design service, in-service training, and advisory missions.

Altogether, more than 25 Australian engineers have received technical training in connection with the Snowy Mountain Project at the Denver Center. At the same time, six Bureau engineers have rendered consultative services on the project in Australia, two of them making several trips to the area. Australia is financing the work with her own funds.

● "The snow isn't so tough, it's the stuff underneath that's hard," said a witty member of drill crew at work high above site for Palisades Federal Reclamation dam. Working under difficult conditions because of snow and ice, men are drilling upstream portal of 1850-ft. spillway tunnel for multiple-purpose structure. Two other tunnels are also under construction. Palisades Dam will make available full and supplemental supply of water for nearly 700,000 acres in the Snake River valley, produce 112,500 kw of power, and provide flood control benefits. (Bureau of Reclamation Photo)

India Lets Convicts Help on Dam

Two thousand prisoners having records of good conduct in Indian penitentiaries are now being employed as voluntary laborers on the construction of a dam which will irrigate rice-growing areas in the State of Uttar Pradesh and increase its food output. This is a new plan to reform prisoners, coordinated with the country's economic development program.

The prisoners work in relative freedom and their output already shows 25% higher than that of an average laborer. The idea behind the scheme is to engage idle labor in productive work of national importance.

The convicts are housed near the construction site. They have a library and are also provided with sports and other recreational facilities.

• Two Bucyrus-Erie 54-B shovels collaborate on special rip-rap screening job. In building Grenada Dam on Mississippi's Yalobusha river, contractor was told by U. S. Corps of Engineers to get dust out of rip-rap. To effect this a screen was rigged up from 6-in. pipe. Then one machine lifted stone with clamshell, dumped it onto screen, which in turn spilled it out onto skip. Second machine placed rip-rap on fill. Contractor is Edward E. Morgan Co., Inc., Jones & Gillis, Inc. of Jackson, Miss. Thirty-two million dollar dam project is expected to be completed by November 1953.

Start Work on Dallas Floodway

Work began in February on the Dallas Floodway, an $8.1 million project under supervision of the Fort Worth District, Corps of Engineers, with Colonel H. R. Hallock as district engineer. The Dallas Floodway project extends over about 10,500 acres in the heart of Dallas, Tex. where the Trinity river bisects the city.

The new project provides for the strengthening of about 26 miles of existing levees along the Elm Fork and West Fork of the Trinity river. The area to be protected by the improved floodway includes important businesses, industries, warehouses, transporta-

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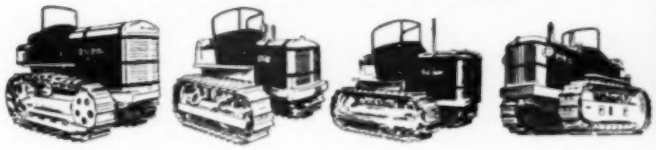

Increase Operator and Equipment Efficiency with

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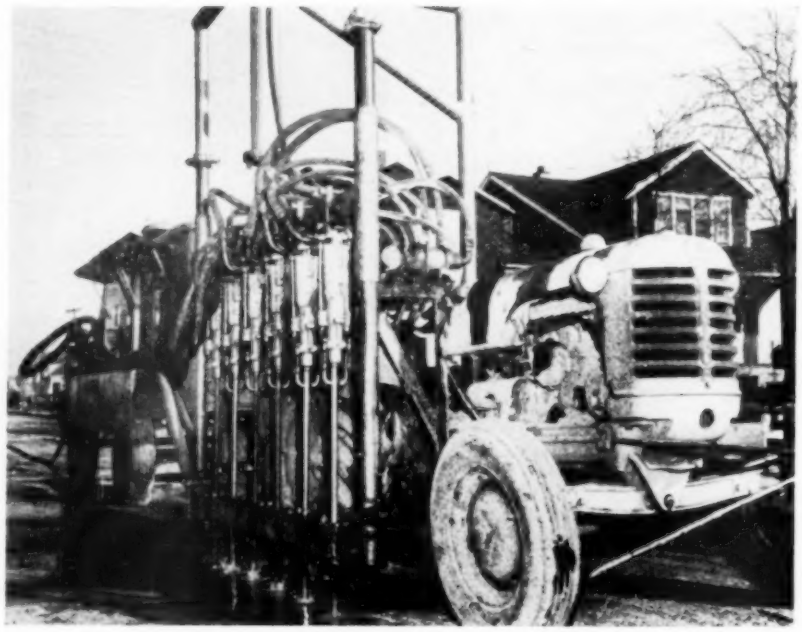
tion facilities, and residential sections. In addition to the strengthening of levees, the floodway channel will be cleared of brush and timber, and interior drainage facilities will be improved.

As required by law, local flood control interests have agreed to provide without cost to the federal government all land easements and rights-of-way necessary for the construction and maintenance of the project. They have also agreed to bear the expense of reconstruction and alteration of highway bridges.

The Dallas Floodway project is an important unit in the overall flood control plan for the Upper Trinity river which also includes the Benbrook, Grapevine, Garza-Little Elm, Lavon Dam and Reservoir projects, and the Fort Worth Floodway. This multi-million dollar program conducted in close cooperation with local flood control interests involves an expenditure of some $77 million including $11.6 million in local funds.



• Closeup view shows R. L. Coolsaet Co., Dearborn, Mich., multiple drill rig at work. Holes six inches apart are drilled by advancing equipment six inches on one move and five and one half feet on next. Ingersoll-Rand rotary compressor powered by GM Diesel engine operates drills.

Six-Drill Rig Simplifies Concrete Removal

The removal of strips from concrete pavements to reach underlying utility lines has been simplified by the R. L. Coolsaet Construction Co., of Dearborn, Mich., through the use of a new and unique arrangement of drilling equipment.

In this arrangement six drills, one foot apart, are mounted on a small wheel-type tractor to which a portable air compressor is hitched. Moving down the pavement as one unit, the equipment drills necessary holes in one half the time required by other methods.

Holes six inches apart are drilled by advancing the equipment six inches on one move and five and one half feet on the next. The job is completed by a hydraulic hammer and a backhoe which follow the drilling equipment.

Besides getting the job done faster and thereby reducing inconvenience and annoyance to traffic and residents on the thoroughfare, the R. L. Cool-

• Bucyrus-Erie 38-B works on one of two 15-ft. cuts through 800-ft. long clay knoll. Job is relocation of tracks for Maine Central RR near Portland, Me. Koehring Dumptor trucks haul waste to swamp ½-mile away. Dragline owner is W. H. Hinman, Inc. of North Anson, Me.

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saet Co. also reports substantial savings in labor costs. Only one man is required to operate the equipment. Because holes are consistently drilled six inches apart, ragged breaks in the pavement, which often cause damage to curbing, are largely eliminated.

Choose Puerto Rico for Water-Resource Studies

Plans for establishing special water-resource development training courses in Puerto Rico for Latin-American and possibly other engineers have been announced by Secretary of the Interior Douglas McKay.

The special studies will be carried on through the cooperative efforts of the Bureau of Reclamation, the Puerto Rico Water-Resources Authority, and the Technical Cooperation Administration. Gordon K. Ebersole, chief of reclamation's branch of training and conference, Office of Foreign Activities, is en route to San Juan, P. R., to assist in arranging the courses.

Under the plan, engineers from Latin-American countries slated for participation in Bureau of Reclamation training courses at its Denver Engineering Center and at water development projects in the western states, would first spend part of their time in studies arranged by the Puerto Rico Water-Resource Authority before coming to the United States. Puerto Rico offers water resource development training under conditions more similar to the trainee's home country than is usually found in the United States. Primary emphasis in the courses in Puerto Rico will be on the economics and basic problems in water-resource development, while technical engineering phases of the problems will be examined in detail by the trainees in the courses at the Denver Reclamation Engineering Center.

• Peter Kiewit's Bucyrus-Erie 22-B, equipped with heavy roller in lieu of dragline bucket, compacts water canal bank near Granby, Col. Caterpillar 318 Diesel powers crane. Bureau of Reclamation job calls for flat, smooth banks before hard surfacing.

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on every equipment move
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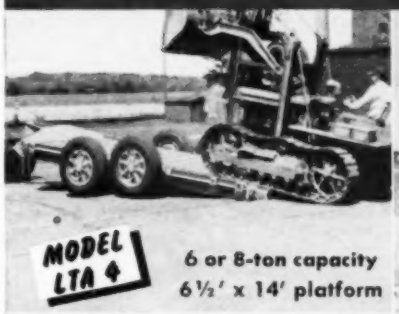

MODEL LTA 4 — 6 or 8-ton capacity 6½′ x 14′ platform

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MODEL DTTA 4 — 13, 16 and 20-ton cap. 8′ x 18′5″ platform

MODEL GTTA 4 — 14, 18 and 22-ton cap. 8′ x 21′2¾″ platform

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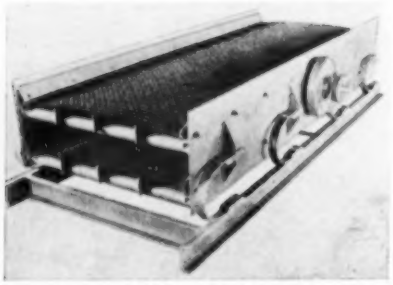


Vibrating Screens

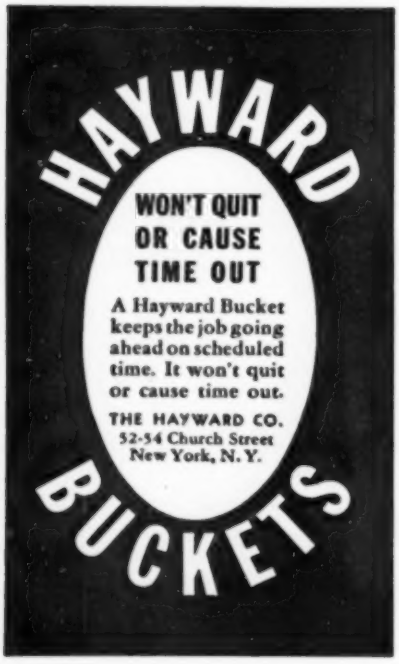
Manufacturer: Kolman Manufacturing Co., W. 12th St., Sioux Falls, S. D.

Claims: This company has announced the expansion of its vibrating screen line to include a larger variety of single, double and triple-deck screens. Now available in the Series "C" screens are multiple deck units 3 and 4 feet wide and ranging to 8 and 10 foot lengths. Also added is a larger single deck model 42 inches wide and available in either 6½ or 7 foot lengths, which is designed for use with large bucket loaders, 30 inch-belt portable conveyors and similar jobs.

Screens now widely used for portable loading and screening units include single and double-deck models from 2x4½ foot to 3x6 foot sizes. These have been used with very good results in smaller screening plants. Past experience of these screens include such jobs as: Highway construction—screening gravel, crushed rock, clay and making chips; coal handling —grading and rejecting at mines, sizing and removing dust while loading; sand and gravel pit screening, washed and dry; ready-mix plants; coke screening and sizing; and ag-lime screening at mines, crushing plants and finishing plants.

The series "C" screens feature a more compact design than former models, which, with more rugged construction throughout, enables them to be made in larger sizes. The spring design allows full freedom of vibrating movement and absorbs vibrations so they are not transmitted to attached equipment. Heavy duty springs and bearings are used for long service; parabolic design of all decks utilizes all space for maximum capacities.

Stock models of these 2, 2½ and 3-deck screens include sizes from 4 to 10 feet long and from 2 to 4 feet wide. The Kolman Co. will also quote for extended delivery on sizes not within this range, or for special screening designs engineered to fit particular jobs.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OR CAUSE
TIME OUT
A Hayward Bucket keeps the job going ahead on scheduled time. It won't quit or cause time out.
THE HAYWARD CO.
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New York, N. Y.
BUCKETS

Portable Earth Drill

Manufacturer: Buda Co., Harvey, Ill.

Claims: The all-new, self-powered, portable earth drill is designated Model Y-1.

The Model Y-1 provides a fast, modern production method for hole drilling from six to 36 inches in diameter and up to 12 feet in depth. It can be quickly set up to drill vertical or angle holes.

Hydraulic controls include: Raising from traveling to operating position; adjusting to vertical; and adjusting for angle drilling in any direction up to about 90° from vertical except toward truck.

The earth drill, powered by a Buda 6-B-230 precision-built gasoline engine, is designed for continuous, all-day drilling. The transmission is a heavy-duty, industrial type, with four speeds forward and one reverse.

The entire unit is built on a sturdy steel, skid type frame. The complete unit can be mounted on a 1½ to 2½-ton truck, half truck, or other suitable conveyance.

Road Roller

Manufacturer: Dann Diesel Corp., Empire State Bldg., New York, N. Y.

Claims: A new Diesel road roller, the Dann-Express Triplex, features new design principles.

In operation, as demonstrated recently by the Model DXR-10, the roller will automatically exert its maximum pressure on the exact surface point where leveling is required — a pressure which is two to three times that of ordinary rollers of equal weight. This is due to the fact that all three rollers stay as a single rigid unit.

The Dann-Express is a true three section machine, designed for a flexibility of movement. Its turning radius is only eight feet.

These features are due in part to the synchronized power steering which turns front and rear rollers simultaneously, so that the three rollers adjust themselves tangentially, all three rollers following the same track. If

required, the middle roller can easily be raised and thus allow the machine to operate as a tandem roller.

The Dann-Express has large single-piece rollers made of cast steel of great strength and durability. For added strength all three axles extend the full width of the roller. The sensitive steering mechanism and unlimited visibility for the operator allows the machine to hug the curb with precision.

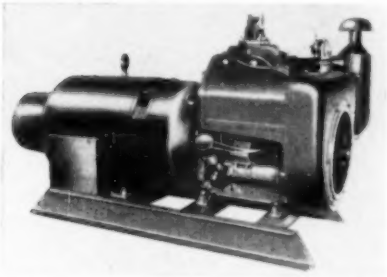
Model DXR-10 is rated 10 to 13 tons, while Model DXR-6 is rated 6½ to eight tons.

Stand-by Electric Plant

Manufacturer: Universal Motor Co., 494 Universal Drive, Oshkosh, Wis.

Claims: A new ultra-modern electric generating plant, engineered primarily for emergency stand-by service, has a 10 kw capacity. It is available with electric starting or can be supplied with controls which automatically start the plant the instant regular power fails.

An important feature of this model is its four cylinder air cooled gasoline



engine. Not having a water cooling system to require attention, the plant's maintenance needs are reduced to an absolute minimum. The modern design of the plant, with its close coupled engine and generator, makes it an extremely compact unit, saving on installation space.

This new plant provides an ideal combination of low initial and minimum operating expense. It can be furnished for single phase or three phase service, at either standard or special voltages.

Optical Level

Manufacturer: Kern Surveying Instrument Division, Paul Reinhart Co., 66 Beaver St., New York 4, N. Y.

Claims: Precision and craftsmanship, synonymous with Swiss products for years, have been incorporated into the new Kern GK-1 optical level for contractors, engineers, architects, and surveyors. The instrument has no foot screws but a ball-and socket joint instead, which, in connection with a bulls-eye level, allows perfect leveling up in a matter of seconds.

Ball joints used heretofore on other

✓ HEIL weight-saving design lets you carry bigger loads, saves gas and tires.

✓ HEIL no-sag body construction gives you longer body-life with fewer repairs.

✓ Low mounting height makes hand loading faster and easier.

✓ Reinforced steel subframe welded integrally with the body to support the load uniformly and distribute the lifting forces of the hoist without bulging or distortion.

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✓ Fast-acting hoist mechanism elevates body to over 50° dumping angle within 12 seconds after raising cycle is started. Precision-engineered cylinder raises and holds loads efficiently and dependably.

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SPEED is a traditional characteristic of Bucyrus-Erie excavators . . . and speed in the individual dig, swing, and dump operations only tells part of the story.

In Bucyrus-Erie machines, working speed starts on the drawing board, where cycle functions are **balanced** with one another (as well as being designed fast in themselves) . . . and co-ordinated with proper weight distribution. Adding smooth, steady power . . . liberally used anti-friction bearings . . . easy-filling dippers . . . and direct-action mechanical control gives them the overall production speed that has made them the standard of the industry.

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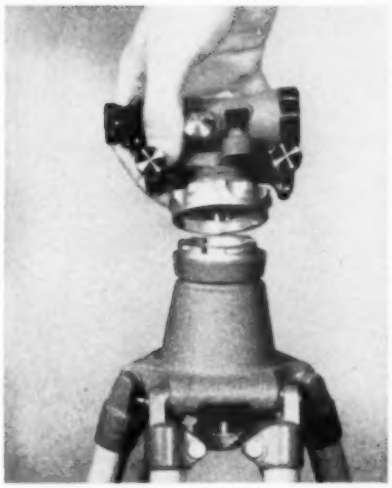


types of (European) surveying instruments were found to lack stability and for that reason were not readily accepted. This problem has been solved on the Kern GK-1 with a quick- coupling joint shown in the photo.

The operator merely places the instrument on its tripod, gives it a firm twist into place, and the two components become a firm, rigid whole.

After the instrument has been leveled with the bulls-eye device (read through a mirror tilted at a 45° angle), a fine tilt screw is adjusted to bring the telescope into perfect level. Coincidence prisms reflect parallel-free images of opposite ends of the spirit level bubble. When viewed through a 2-power lens near the eyepiece, these appear as quarter circles. Adjustment is continued delicately until they combine to form a semicircle, as shown in the photo. At that time the line-of-sight is guaranteed to be within one second of true level, or 1/3600 of one degree!

As on most American models, the telescope glass has stadia lines for distance readings. That portion of a rod cut off by these lines, if read in decimals of a foot, will give the distance from the instrument axis to the rod, expressed in feet.

The GK-1's counterpart is the GK-1C which is provided with a horizontal circle, divided into 360°. It can be set to a zero reading at any point and a magnifying glass permits direct readings to 1/10 of a degree and estimated readings to 1/20.

All air-to-glass surfaces have been treated with a hard coating. Harder than the glass surfaces on which it is applied, this coating not only prevents scratches but provides 40% more brilliance to the telescope.

Overall dimensions of the carrying case are only 3x5x4 inches. A clever design is incorporated into this case: If the instrument is not locked firmly in place, the cover cannot be fastened; once the cover is in place, however, the instrument cannot come loose and "float" around in the carrying case.

The instruments are made at the Kern factories in Aarau, Switzerland, but are sold and serviced by several representatives in the U. S.

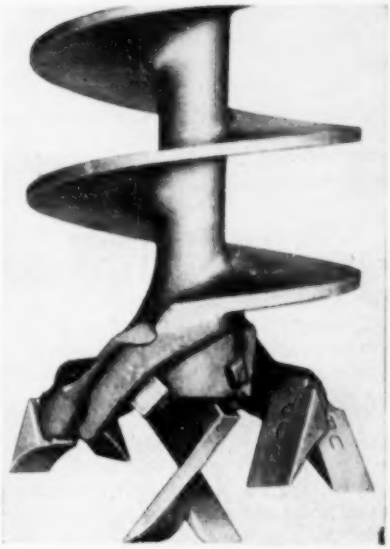
Anchor Augers

Manufacturer: Petersen Engineering Co., Santa Clara, Calif.

Claims: Especially designed for boring holes for expanding anchors, three new Pengo triple-flight anchor augers have been added to the Pengo earth auger line.

The new anchor augers retain the identical cutting features of the Pengo earth auger, except that a three-flight single helix is used to carry dirt out of the hole instead of the valves utilized on larger augers. This permits completion of the hole with less than half as many trips up and down, and cleans the bottom of the hole better.

The size of the center shaft is reduced, which makes it possible for the first time to bring rocks out of the hole with a small diameter auger. This auger is intended for use in all types of soil, but is most useful in hardpan, sandstone, frozen ground, permafrost,



or any place where the going is tough.

Cutting heads of the augers are equipped with the same fishtail pilot bit and replaceable wisdom teeth used on all Pengo augers for rapid penetration in hardpan, frozen ground, most sandstones and all ordinary soils. Shank plates, bolts, etc., are also interchangeable with other Pengo augers, so that users need maintain but a

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Especially Designed For Efficient Service On

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Rubber Mounted Base — Standard Model

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New model for inside or outside use. Equipped with convenient carrying handle and substantial pedestal base. Spring-mounted light socket. 4-ft. cord and connector. For all voltages. Weighs only 12 lbs.

STURDILITE Heavy-Duty Flood Lamps provide specially high light intensity and spread. Heavily constructed for years of trouble-free service. Hermetically sealed-beam lamp — no reflector to tarnish. Spring-mounted socket. Complete assembly mounted on rubber cushioned base to absorb vibration and shocks. Available in 6-8, 12-16, 24-28 and 110-120 voltages.

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4723 N. 27th ST., MILWAUKEE 16, WIS.

minimum stock of replacement parts.

Three sizes are now available; a 9 inch (for 8 in. expanding anchors), 11 inch (for 10 in. anchors) and 13 inch (for 12 in. anchors).

The new anchor auger is available with different hubs to fit all makes of earth boring machines.

Vinylite Tarpaulins

Manufacturer: American Agency, 799 Broadway, New York 34, N. Y.

Claims: Made of DuPont 10 gauge Vinylite, these tarpaulins are half the weight of duck tarpaulins, yet they are durable and tough.

They are 100% waterproof, crackproof, peelproof; resistant to abrasion, motor oils and most chemicals, and will not warp or shrink after prolonged weathering and exposure to wide temperature fluctuations. Non-inflammable, the tarps will protect machinery, trucks, boats, passenger cars and general cover-all purposes.

Elevating Grader

Manufacturer: Barnard & Leas Mfg. Co., Inc., P. O. Box 1787, Cedar Rapids, Ia.

Claims: The new "B & L" elevating grader is designed for use with the Galion Model 118 motor grader.

Features of the new product include finger tip control, power take-off, extendible length carrier, and heavy-duty frame. Folding carrier is standard equipment. Carrier is folded from the cab of the grader without removing any bolts or pins.

The elevating attachment is designed for easy hook-up to grader. Easy elevator removal allows quick blade and equipment attachment.

Belt width is 42 inches. Standard carrier length is 16 feet. One or two 3-ft. extensions are available to extend carrier to 19 feet or 22 feet.

Approximate shipping weight for unit is 800 lbs. Capacity of the loader is estimated at 1000 to 1800 cubic yards per hour.

Conveyor Belt

Manufacturer: New York Belting & Packing Co., 1 Market St., Passaic, N. J.

Claims: A new type of conveyor belt featuring rip-proof design has just been placed on the general industrial market. It is particularly effective for use where conveyor belts may be subject to severe ripping or tearing action by foreign objects, such as in coal mining and handling, quarry work, and mining of metallic ores.

The belts have a special carcass which has multiple strands of high tensile steel wires imbedded at three-foot intervals. Even in instances where a foreign object punctures the belt, the tearing is limited by the unusual construction to a maximum of about three feet lengthwise.

Truck

Manufacturer: International Harvester Co., 180 N. Michigan Ave., Chicago 1, Ill.

Claims: Model R-184 Loadstar, 142-in. wheelbase truck with 4-yd. dump body, is one of 168 basic truck chassis models in 296 wheelbases introduced recently by the manufacturer. Gross vehicle weight rating of the illustrated model is 21,500 pounds.

R-184 Loadstar models are available in four wheelbases from 130 to 172 inches; standard engine is the new 130-hp Black Diamond 282. Gasoline or LPG fuel systems are available.

R-line trucks sport new styling. The line offers 307 new features developed at the manufacturer's Fort Wayne, Ind., engineering and test laboratories and proved at the company's Phoenix, Ariz., desert proving ground.

Transmission Belt

Manufacturer: B. F. Goodrich Co., Akron, O.

Claims: A new rubber transmission belt, the first to be made with all rayon fabric, is said to be 25% stronger and has up to 10 times greater flex life than cotton fabric belts made with the same number of plies. Tests on the drive show the new belt to have 50% less stretch than cotton fabric belts.

Called "Drivesall," the rayon fabric belt is the result of five years of laboratory tests and field development by the manufacturer. The improved strength of the belt is due to the nature of the rayon filaments which are formed in continuous lengths, as contrasted with the short length fibres of cotton duck.

Because rayon fabric plies are 30% thinner than cotton plies, they flex easier over small diameter pulleys and more plies can be used to make strong-

ROOTS & DOZES

IN THE SAME PASS...

ESCO introduces NEW BUCK FORTE ROOTER

Model view. Four adjustable rooting depths: 9", 15", 21" and 27".

REMEMBER the name—Buck Forte Rooter—especially designed to root and doze on the same pass. This dual feature of operation has enabled operators, working with a pair of Buck Forte Rooters, to up their dozer yardage over 50%. *That's a job-proven fact.*

It gives you these advantages:

LIGHT IN WEIGHT. Less than 1,000 lbs. No special handling equipment required. Can be transported on the tractor.

LOW COST. The Buck Forte Rooter costs 75% less than conventional rooters.

TOUGH AND DEPENDABLE. Equipped with *ESCO* alloy steel shank and renewable box type points, it has proved itself in concrete, rock and hardpan.

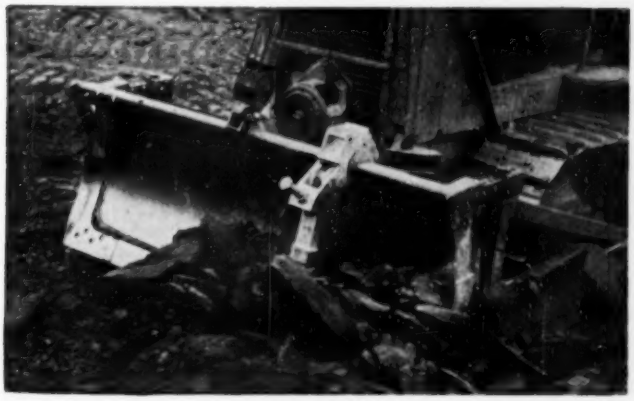
EASILY INSTALLED. One man can install or remove the rooter in minutes with no cutting or welding on dozer.

ADJUSTABLE. Four adjustable rooting depths—9", 15", 21" and 27".

FITS ALL LARGE, STRAIGHT DOZERS. Can be used in pairs or singly.

Get more information on the new Buck Forte Rooter—Just see your ESCO dealer or fill in and mail the coupon.

Rooter mounted on dozer blade. Second rooter is usually installed to double effectiveness.



Buck Forte Rooter on a straight dozer rooting unshot sedimentary ocean rock for aggregate plant.

ESCO DRAGLINE BUCKETS, DIPPERS AND HOE DIPPERS

ELECTRIC STEEL FOUNDRY

2177 N. W. 25th Avenue, Portland 10, Oregon

Sales Offices and Warehouses

DANVILLE, ILLINOIS	NEW YORK CITY, N. Y.
HONOLULU, T. H.	SAN FRANCISCO, CALIF.
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Dealer Representatives in All Major Cities

ELECTRIC STEEL FOUNDRY
2177 N. W. 25th Avenue, Portland 10, Oregon

Please send literature on the new Buck Forte Rooter.

NAME_____

ADDRESS_____

CITY_____ STATE_____

er, more flexible belts. A six ply Drivesall belt is only as thick as a four ply, 32-ounce cotton fabric belt.

Drivesall is designed for use on medium duty drives for fans, blowers, air compressors, pumps, machine tools, crushers, mills, and many additional special types of machinery.

Pile Driving Hammer

Manufacturer: M.T.P. Co. of America, 14031 Huston St., Sherman Oaks, Calif.

Claims: A self contained Diesel pile driving hammer being placed on the market started with a German invention and has undergone a number of improvements over the past 10 years. The hammer's chief advantages are the elimination of a steam or air generating unit, its labor saving features, high mobility, reduced setting up time, fuel economy and low initial cost.

Due to the hammer's compact arrangement, a pile driving crew may be reduced to an operator and one helper, thus saving about 50% in labor. Its shock free characteristic permits light weight tubular leads to be used, which may be mounted on a tractor, crane or barge, with resulting quick movement to job sites.

The initial model which is of medium capacity is particularly suited to average and small jobs such as the construction of boat landings, piers, docks, revetments, foundations for buildings, and railroad and highway maintenance work. Wood, concrete and steel piles and sheet piling can be driven economically up to 2 tons in weight. An average wood pile can be driven to a 150 ton load bearing capacity at a rate up to two fpm.

The operation of the hammer is started after the pile is lifted to a driving position and secured to the leads. With the driving anvil and the body of the hammer resting on the pile the heavy ram shaped piston is raised to its starting position by a line from a small hoist. When the piston reaches its upward position the cocking mechanism is disengaged. During its downward travel a fuel injection pump cam is actuated, thus injecting fuel into the lower combustion chamber. As the piston nears the lower part of the cylinder the exhaust ports are closed off and compression is started. When the piston strikes the driving anvil, atomization of the fuel under a pressure of over 500 psi is accomplished. The ensuing slow combustion of the Diesel fuel adds to the driving forces on the pile as well as returning the piston to its upward position in order that it may continue its next stroke. The overall driving force exerted on the pile is derived from the pre-combustion pressure load, the piston striking the anvil and the ensuing explosion of the fuel.

This model which is of medium capacity delivers 7,500 foot pounds per stroke at the rate of sixty strokes per minute. The gross weight is 2,250 lbs. with a piston weight of 1,150 lbs. The Diesel fuel consumption is ¾ gph with a tank capacity of 2½ gallons. Overall dimensions are 14 inches in diameter by 9 feet 10 inches long.

Generator Cart

Manufacturer: Wincharger Corp., East 7th and Division Sts., Sioux City 2, Ia.

Claims: A "Speedy-Shift" "wheelbarrow base type" attachment for engine-generator sets has been developed. Model 187 "Speedy-Shift" is for attachment to Models 700 and 1800 engine-generators, and Model 543 "Speedy-Shift" is for attachment to the Model 5000 engine-generator. The single handle permits the unit to be easily pulled instead of pushed. This is an advantage where the unit must be transported over rough surfaces.

Sturdy semi-pneumatic rubber tired wheels are provided and located in reference to the center of gravity. This provides a secure footing for the unit in conjunction with the double legs attached at the opposite end of the cradle base, and still is located as to accept the largest portion of the total weight of the unit. This is intended to relieve the operator and provide easy transportation of the unit. The

"Speedy-Shift" base comes complete as a package and may be attached or detached from the standard cradle base in a matter of minutes.

Portability of the engine-generator sets themselves has been enhanced by the use of a belted engine-generator construction which permits higher, more efficient operating speeds and maximum weight reduction for both engine and generator.

Welding Tool

Manufacturer: Thermacote Co., 301 Mount Pleasant, Newark, N. J.

Claims: The combination of a three flint spark lighter and tip cleaners in one tool has been developed and is currently being marketed under the name of Tip-O-Liters. This product

NEWCO* WIRE ROPE
CLAMP
AND THIMBLE
*trade mark
...the heavier the load, the tighter it holds!

Pat. No. 2060417
Pats. Pend. in other countries.

● NO SLIPPAGE
● 11 SIZES TO FIT WIRE ROPES FROM ⅛" TO 1"
● DEVELOPS 85 TO 90% ULTIMATE ROPE STRENGTH (95 to 100% Catalog List)

The strongest and most efficient attachment for wire rope. Made of permanent castings with standard replaceable bolts and nuts. NO WRONG SIDE—threads either way. Easy to install and never needs lubricating.

See your distributor or write direct to

NEWMAN MFG. & SALES CO., Inc.

Dept. EE-2 Box 5939, Kansas City 2, Mo.

has a case of twelve spiral tip cleaners attached directly to the handle of the three flint spark lighter making one unit. The three flint lighter is a high quality, heavy duty type. The cleaners are Thermo spiral tip cleaners which provide an advance in tip cleaner design. The spiral type ribs eliminate frequent breakage of cleaners and allow the removal of carbon and slag without scratching or enlarging the orifice of the torch. Cleaners are guaranteed against breakage and will be replaced free of cost.

Nozzle Puller

Manufacturer: Owatonna Tool Co., N. Cedar St., Owatonna, Minn.

Claims: A recent product is a new puller for removing the fuel injection nozzle from the cylinder head on all International Harvester Diesel engines. The new model is designated Puller No. HC-689.

This tool is fast and efficient, exerts a straight, powerful pull and does this otherwise difficult job in minutes. The tool is adjustable and may be used for other pulling jobs as well.

Truck Mixers

Manufacturer: Worthington Corp., Harrison, N. J.

Claims: The manufacturer has introduced a new line of inclined axis Hi-Up truck mixers featuring "engineered weight" to allow for greater payloads.

Light weight has been maintained on the new mixers without sacrificing the heavy-duty characteristics ready-mix operators require.

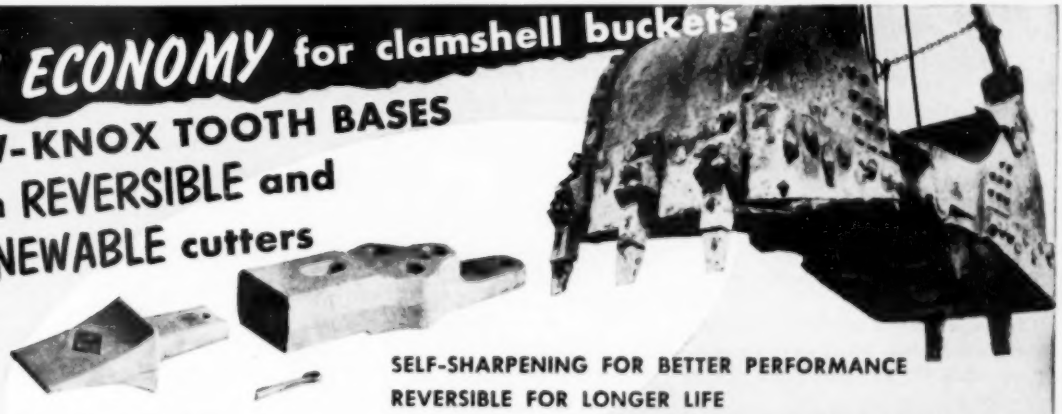
Built in three sizes, the mixers are rated according to Truck Manufacturer's Bureau specifications. The 3-yd., 4½-yd., and 5½-yd. machines are each available in two model arrangements.

The Model LC is equipped with full-floating charging hopper with built in seal. The Model LO is equipped with fast charging open end type stationary hopper. The machines can be rated and used as agitators.

By manufacturing a drum of un-

NEW ECONOMY for clamshell buckets

BLAW-KNOX TOOTH BASES with REVERSIBLE and RENEWABLE cutters



The tapered shank of the cutter wedges securely into the tapered pocket in the base. For replacing or reversing, a sharp hammer blow on the sides of the cutter loosens it from the base.

SELF-SHARPENING FOR BETTER PERFORMANCE
REVERSIBLE FOR LONGER LIFE
QUICKLY AND EASILY REPLACED FOR ECONOMY
BASES ARE BOLTED TO THE LIPS AND ONLY THE CUTTERS ARE REPLACED

Blaw-Knox tooth bases are available with holes drilled for existing arrangement of tooth bolts on many Blaw-Knox Clamshell Buckets ranging in size from ⅛ to 1-cu. yd., in general purpose, rehandling, hard digging and round nose hard digging types. For some other bucket sizes, blank tooth bases can be drilled to suit existing bolt hole arrangements. See your Blaw-Knox distributor for full details about bases and cutters for *your* buckets.

BLAW-KNOX

BLAW-KNOX EQUIPMENT DIVISION
Blaw-Knox Company
Farmers Bank Bldg., Pittsburgh 22, Pa.

usually large diameter, the center of gravity of the machine is kept well forward for maximum payload. The drums are fabricated of abrasive resistant steel with heavier gauge at the mixing end. Overlapping drum joints are automatically welded on the outside; space welded on the inside for greatest possible strength at the seams.

The abrasive resistant drum blades are die-formed at the discharge end of the drum. Thus, there is no resistance to the material being discharged. Correct blade angle, and the lack of any pockets or projections, make the entire blade assembly self-scouring.

The transmission setup has been kept simple. The single pair of oversized spiral bevel gears are on the input end of the transmission where they run at engine speed. All other gears are spur toothed, heat treated forgings.

Clutches for controlling forward and reverse rotation of the drum are multiple disc clutches running in a bath of oil. The transmission has a positive centering device so the neutral position between forward and reverse clutches is automatically located.

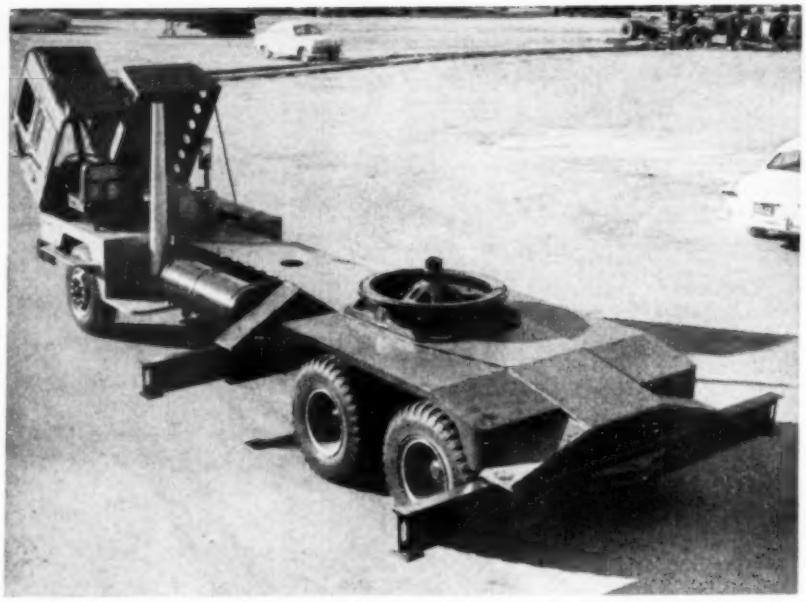
Wheel Block

Manufacturer: Calumet Steel Castings Corp., 1636 Summer St., Hammond, Ind.

Claims: A new heavy duty truck and trailer wheel block, made of high strength cast alloy steel, is designed to hold heaviest vehicles and loads with ease.

Called the Casteel safety wheel block, it incorporates a number of features that assure positive, safe holding under adverse conditions of grade, surface, and load. The wheel blocks are furnished with cast-in holes on the bottom plate to permit nailing the wheel block to freight car or truck floors, shipping platforms, etc., to insure positive blocking of heavy equipment during shipment.

The safety wheel block has a wide, curved tread plate which gives greater contact with the tire and allows even,



safe distribution of the load. No sharp corners or projecting surfaces are present, which eliminates accidental cutting or snagging of tires. A heavy center rib support, designed to resist maximum thrust, gives the Casteel wheel block a wide margin of strength and safety.

A feature of the new product is the heavy steel gripper teeth on the bottom plate, which keeps the block from creeping or slipping, even on ice or snow. Provision for hook or chain attachment to the block is made by a cast-in hole on the center rib support.

The wheel blocks are painted standard safety yellow for high visibility. Weight of each block is 12 lbs.

Galvanized Locknut

Manufacturer: Security Locknut Corp., North Ave. and 15th Ave., Melrose Park, Ill.

Claims: A Locknut that can be hot-dipped galvanized has been developed. This locknut has a square body. It holds its position on the bolt by means of a locking insert.

The locking insert is a slightly elliptical, heat-treated, retainer ring of the finest spring steel obtainable. When the nut is applied the bolt forces the retainer into the round, causing the retainer to grip the bolt with high-tension strength. It does not require bolt tension to stay "put" and it can be removed and replaced any number of times.

Crane Carriers

Manufacturer: Cook Bros. Equipment Co., Crane Carrier Division, 1815 N. Broadway, Los Angeles 31, Calif.

Claims: Crane carriers are now available in all capacities from five ton and up, and for all makes of cranes, shovels, drag lines, and trench hoes.

The operator's cab is hinged at front, allowing free access to left side of engine to simplify maintenance. Safety rod holds hood in position. There is nothing to adjust or disconnect—just loosen two holddown screws and raise cab—one man does it easily.

The frame is of welded steel construction. Channels, plated top flanges, and reinforced bottom flanges provide additional strength.

D-C Arc Welder

Manufacturer: General Electric Co., Schenectady 5, N. Y.

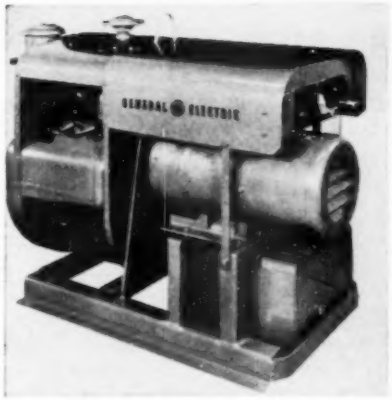
Claims: A new 200-ampere, engine-driven d-c arc welder with a 60% duty cycle was recently announced by the manufacturer.

Designated as type WD-42AGW, the new welder has a current range of 40 to 250 amperes, and can be used with a variety of electrode sizes for repair, maintenance, and construction work.

Consisting basically of a G-E type WD42 generator and a Wisconsin air-cooled engine, it is designed to fit crosswise in a standard pick-up truck. Optional equipment includes a trailer equipped with fittings for pressure lubrication.

Forced ventilation keeps internal temperature within safety limits when the welder is operated on a 60% duty cycle at rated load. In addition, tests indicate that heavy overloads for short periods do not produce harmful results.

Maintenance-wise, either the generator or engine can be removed easily for overhaul, and replaced by a stand-by unit. Since the engine is air cooled,



coolants or anti-freezes are not required. A vacuum-type device saves gasoline by idling the engine when welding is not being done.

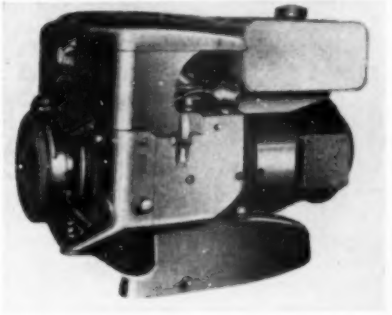
Magnet Generator

Manufacturer: D. W. Onan & Sons Inc., Minneapolis 14, Minn.

Claims: A new electric generating plant is offered specifically for commercial and industrial lifting magnet use. These 3,000 and 5,000-watt D.C., (230 to 250 volts) plants are designed for both stationary and portable service in either manual or remote (electric) starting models.

Prime power for the electric plants is provided by an Onan "CK" 2-cylinder, air-cooled, 4-cycle engine. Extra-large bearings, pressure lubrication, high tension magneto ignition and other long-service features are built in.

Onan magnet-service generators, directly connected to the engine, have



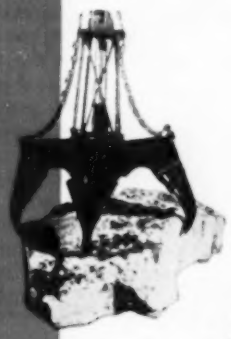
230 to 250-volt output with rheostat control, commutating poles, junction box and high potential tested insulation. Of drip-proof design they are cooled by a centrifugal blower.

All manual starting models are equipped with a ratchet type Onan Readi-Pull starter with the stop button built into the blower housing. Remote starting models have a built-on starter generator for electric cranking.

Approximate weights: For manual stationary models—325 lbs.; remote stationary models—345 lbs.; for manual portable models—305 lbs.

OWEN

THE GRAPPLE WITH THE GRIP for GREATER GRABS



To *grab* and to *hold* safely is the function of a grapple.

The Owen Grapple *alone* has independently acting tines each of which contacts the object to be lifted, regardless of its shape, and grips it with heretofore unknown tenacity. These photos tell the story.

The Owen Grapple opens *wide* to grasp *large* objects. Fast, safe operation is assured indefinitely because of the tremendous grip, scientific design and the use of the best materials available.

THE OWEN BUCKET CO.

6095 BREAKWATER AVE., CLEVELAND, OHIO

Branches: New York · Philadelphia · Chicago · Berkeley, Calif. · Fort Lauderdale, Fla.

New trade literature

Subject: **Foundation Engineering**
Content: Foundation Engineering is a new 409-page book that not only develops and utilizes knowledge of soil mechanics but also presents a vast store of practical engineering information. Authors of the book are Ralph B. Peck, research professor of soil mechanics, University of Illinois; Walter E. Hanson, engineer of bridge and traffic structures, Illinois Division of Highways; and Thomas H. Thornburn, research associate professor of civil engineering, University of Illinois. In order to develop the material in logical sequence, the book is arranged in four parts. Part A serves as a text in basic soil mechanics as applied to any branch of civil engineering. Part B contains descriptive matter concerning foundation practice. Part C develops for the reader the ability to select the most appropriate type of foundation for whatever subsurface conditions he may meet, and to predict the behavior of the structure during and after construction. This section fills the gap for the practicing engineer between the results of soil borings and laboratory data on one hand, and the selection and design of the foundation on the other. Finally, Part D presents the elements of structural design of commonly used foundations and retaining structures. Throughout the book, emphasis is on the ordinary types of foundations with which the reader is most likely to deal in practice. The role of geology is spotlighted and specific procedures are presented for exploiting geological knowledge to best advantage. The book is illustrated throughout.
Where to get: John Wiley & Sons, Inc., 440 Fourth Ave., New York 16, N. Y. ($6.75)

Subject: **Shovel and Crane Operation**
Content: A series of eight articles discussing the *Use and Application of Power Cranes and Shovels* has been compiled under one cover and made available for general distribution. The articles originally were written by E. O. Martinson, vice president in charge of engineering, Koehring Co., Milwaukee, Wis. The 32-page booklet contains a detailed discussion on the basic principles of power shovel and crane operation. Aided by numerous photographs, drawings, graphs, and tables, the capabilities of various excavator and crane attachments are outlined along with prescribed requirements for most efficient operation of these machines. The details involved in making a proper selection of this equipment for ordinary operating situations also are discussed in detail. Two complete articles in the booklet are devoted to a discussion of "Safety Considerations with Excavators" and "Excavator Operating Costs," thus making the booklet a handy reference manual for excavator owners and operators as well as a text for engineering students. The articles have been published under the auspices of the Power Crane and Shovel Association.
Where to get: Koehring Co., 3026 W. Concordia Ave., Milwaukee 16, Wis.

Subject: **ASA Building Code**
Content: The American Standards Association has approved *Building Code Requirements for Excavations and Foundations* as an American Standard (A56.1-1952), it was announced recently from New York. The code consists of minimum requirements for excavations with reference to safety of structure or permanence of foundations, soil bearing capacities, extent and proportions of footings and foundations, and recommendations for piling and allowable pile loads. Developed through ASA procedures by its committee A56 and sponsored by the American Society of Civil Engineers, this newly-approved code is the culmination of more than 14 years of work. Various divergent points of view have been brought into harmony in the standard's final form. An appendix to the standard contains supplementary material designed to assist local building code committees and building officials in applying the recommended code requirements. This is not a part of the code but is provided as background material for users of the standard. Since minimum bearing values cannot properly be assigned over wide sections of the country, a table is included giving various classes of material and the values assigned to them in specific communities. The values suggested by the committee for general application are also given in the table. Certain requirements in the code are based on the findings of a special canvass of municipal law officers conducted by the U. S. Conference of Mayors.
Where to get: American Standards Association, 70 E. 45th St., New York 17, N. Y. (.80)

Subject: **Diesel Engine Primer**
Content: A unique and informative new booklet on Diesels, written in simple, non-technical language, is entitled *What You Should Know About Diesel Engines*. It effectively

"Can't you wait a few minutes."

calls upon the grade school "primer" technique for both telling and illustrating the Diesel story. Its main objective is to show just how simple the modern Diesel engine is and how easy it is to understand its operation. The booklet records the Diesel engine's invention and early development; compares it with the gasoline engine; tells about the two-cycle and four-cycle types of Diesels; explains its operation in simple pictures and words; and reports latest advancements in modern Diesel engine design. The new two-color booklet is in handy pocket size and has dozens of illustrations in its 28 pages.

Where to get: P&H Diesel Division, Harnischfeger Corp., Crystal Lake, Ill. (Ask for booklet by name.)

Subject: **Weldability of Metals**

Content: *Weldability of Metals* is a 141 page book which discusses ferrous and non-ferrous metals weld problems. The Lincoln Electric Co., of Cleveland, O., has reprinted in this book a section of its standard welding reference the *Procedure Handbook of Arc Welding Design and Practice*. Frequent requests for information on how to weld various types of metals led Lincoln to publish this information in a special book so that it could be made widely available at low cost. The various types of carbon and alloy steels are described by giving nominal chemical analysis, properties, uses and characteristics. The best welding procedure for each is completely detailed. American Welding Society specifications for electrodes used to weld are also given. The same treatment is given to copper, aluminum and nickel as well as their various alloys. Cast iron, forgings, cast steel, wrought iron, ingot iron, galvanized steel, terne plate and enameling stock are similarly covered. A thorough analysis of the principles and practices of hardsurfacing is presented. Complete tabular data, drawings and pictures supplement the text.

Where to get: Lincoln Electric Co., Cleveland 17, O. ($0.50)

Subject: **4-yd. Shovel**

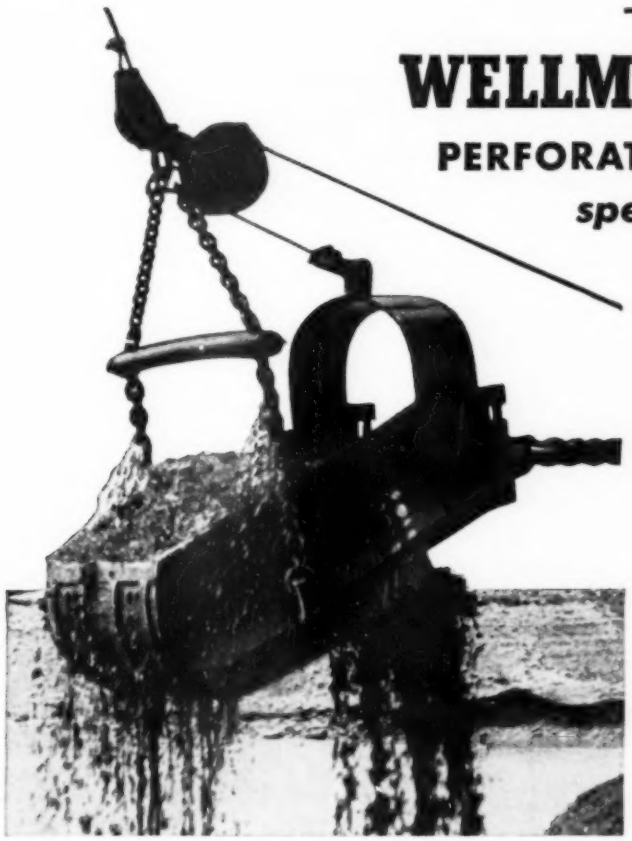
Content: A new bulletin describes the Marion 111-M Diesel shovel, with 4-cubic yard dipper. The 12-page, two-color booklet is illustrated with photos of the 111-M in practically every material handling application. The unit is available as standard shovel, long-range shovel, or dragline. Outstanding features include Ward-Leonard-Electric Swing and Marion air control. Other features mentioned in the booklet are: Compact, accessible machinery deck; heavily-built upper frame; rugged machinery assemblies; independent boom hoist (optional); and lower frame strength. A choice of two Diesel power units is available. A new type rigid gantry is also featured on the 111-M. The hinged gantry, which changes angle as the boom is raised or lowered, is optional.

Where to get: Marion Power Shovel Co., 617 W. Center St., Marion, O. (Bulletin No. 402-A)

Subject: **Water Hose**

Content: A new four-page catalog on water hose has been published. In addition to hose for general water service, the catalog describes types of water hose designed for specialized uses. These include long length, heavy duty hose for construction projects, road building, and other high pressure uses; large diameter hose for high pressure

Continued on page 74



WELLMAN *Williams Type*

PERFORATED DRAGLINE BUCKET

speeds the wet jobs

• You get big loads fast with this Wellman Perforated Dragline Bucket because excess water goes out while gravel stays in on jobs such as illustrated.

Built of special alloy steel—all welded for strength plus light weight. You can work faster with less maintenance with Wellman dragline buckets.

Want Facts?

Write for free descriptive bulletins.

Dragline, Clamshell, Custom-Built Buckets, Stone and Wood Grabs.

THE WELLMAN ENGINEERING COMPANY

7000 Central Avenue • Cleveland 4, Ohio

NOT in the *Contract*

Two cockroaches lunched in a dirty sewer, and excitedly discussed the spotless glistening new restaurant in the next block.

"I hear," said one, "that the refrigerators shine like polished silver. The floor sparkles like diamonds. It's so clean."

"Please," said the second cockroach in disgust, "not while I'm eating!"

McKeon was busily engaged with a spade in the mud beside his car when a stranger hailed him.

"Stuck in the mud?" asked the stranger.

"Oh, no," exclaimed Chester, cheerily, "my motor just died and I'm digging a grave for it."

A man was passing a lonely street corner one night when he heard a voice coming out of the shadows.

"Would you be so kind as to help a poor unfortunate fellow who is hungry and out of a job?" it asked, then added, "I haven't a thing in the world but this revolver."

"Did she blush when her shoulder strap broke?"

"I didn't notice."

"Believe me, Tip has really cut his drinking in half."

"Wonderful."

"Yep, he eliminated the chasers!"

A fellow was pretty sick and the doctor ordered him to take a long vacation in Arizona. He went there and at the end of two months he died.

They brought the corpse back home and his wife and her brother were viewing the remains.

She said: "Oh, Joe, doesn't he look nice?"

And Joe replied: "He sure does. Those two months in Arizona certainly did him a lot of good."

She was only a second-hand dealer's daughter, but she wouldn't allow much on the davenport.

Shovel Runner: "There's a woman peddler at the door."

Contractor: "We'll take two."

"Sorry, Gus, but I don't work my truck on Saturday evenings. What's that? You'll pay double time? Okay, I'll come down and get loaded right away."

Farmers have tried many tricks, shooting, dynamite, various kinds of traps, poisoned grain, all sorts of mechanical devices have been tried in an effort to frighten birds out of the cornfields.

A man near Southwest City, Mo., used to spin a long windy tale about his invention of a marvelous lifelike scarecrow. It was made of tin, he said, and not only waved its arms at irregular intervals, but emitted a loud yell every few minutes.

"Did it scare the crows?" I asked.

"Skeer the crows!" he cried, "I should say it did. Why gentlemen, that contraption skeered the crows so bad that some of 'em fetched back corn they had stole two years before!"

All the animals had left the ark except two snakes lying over in a corner.

"Why don't you go forth and multiply?" they were asked.

"We can't. We're adders."

A drunk fell from a 2-story window and hit the pavement with a terrific impact. A crowd gathered and as the drunk staggered to his feet someone in the crowd grabbed him by the arm asking, "What happened?" To which the drunk replied. "I dunno; I just got here."

Fellow to blonde at cocktail party: "May I join you?"

Blonde: "Am I coming apart?"

Big drop of ink: "Where has your brother been lately?"

Little drop of ink: "He's in the pen, finishing a sentence."

Little Audrey, mad as hell
Pushed her sister in the well,
Said her mother, drawing water,
"Gee, it's hard to raise a daughter."

Dogs in Siberia are the fastest in the world because the trees are so far apart.

During a grouse hunt, two English sportsmen were hunting from blinds situated close together. Suddenly a red indignant face showed up over the top of one blind and the owner said angrily, "Curse you, sir, you almost hit my wife just now!"

"Did I?" asked the other, aghast, "I'm terribly sorry, old man. Tell you what—you can have a shot at mine."

Biggest Caterpillar Scraper built...*the new No. 90!*

HERE's an agile giant with a huge capacity — the *big* new Caterpillar No. 90 Scraper for *big* jobs. Pulled by the D8 Tractor, the No. 90 handles 21.2 cu. yds. struck, 27 cu. yds. heaped.

Feature after feature make this tough new earthmoving tool a great buy for you. Bowl and cutting edge angle are designed for fast, easy loading. The "stinger" bit digs cleanly in any soil. Self-sharpening cutting edges are reversible for longer life. Large-size, low-pressure tires increase flotation and lessen draft. Low center of gravity provides excellent stability. Push block extends well to the rear to avoid damage to rear tires by pusher tractor. High apron lift assures positive, controlled dumping, even of sticky materials. And 60% of the loaded weight is on the rear wheels for easier steering. No detail has been overlooked! As a result, they all add up to *more* yardage at *less* cost — the kind of production that means money in your pocket.

With the squeeze on profits from constantly increasing expenses, you'll find it good business to put this big producer in your line-up. Like all Caterpillar machines, it's built for long life and backed by excellent service from your Caterpillar Dealer. He knows equipment — he knows earthmoving. Let him demonstrate what the No. 90 can do for you!

CATERPILLAR, PEORIA, ILLINOIS

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

New Trade Literature

Continued from page 71

water and air service in pile-driving operations, hydraulic bank grading, stripping and sluicing, and for heavy-duty service in mines and quarries where abrasion on cover is severe. Water hose for use in paper and pulp mills features a hose tube designed to withstand hot (200 degrees F.) water without swelling, has rubber-capped ends or tapered ends.

Where to get: B. F. Goodrich Co., Akron, O.

Subject: **Current Road Problems**

Content: A 19-page publication of the Highway Research Board outlines recommended practice for curing portland cement-concrete pavement. *Curing of Concrete Pavements* (No. 1-R) is a revision of *Current Road Problems 1.* The original *Wartime Road Problem No. 1* was published in July 1942 during the war period as an emergency bulletin. It presented recommended practice for curing portland cement-concrete pavement under wartime restrictions on critical materials. This revised bulletin makes available the current recommended practice together with suggested specifications and methods of tests. A selected bibliography is included at the end of the bulletin.

Where to get: Highway Research Board, 2101 Constitution Ave., Washington 25, D. C.

Subject: **Steel Piles**

Content: A new 24-page catalog covering Monotube fluted steel piles has just been released by the manufacturer. In addition to complete descriptive information and greatly simplified specifying data, the new catalog includes a broad range of typical installation photos, test driving data, and other technical information of particular interest to engineers and contractors.

Where to get: Union Metal Manufacturing Co., Canton 5, O. (catalog No. 81)

Subject: **Flexible Tubing**

Content: A complete line of flexible tubing, in diameters from less than one inch to 30 inches, is described in a new four-page bulletin. The ducting, made of fabric supported rubber or plastic wound on helical spring wire coils, is lightweight, highly retractable, non-collapsible, non-kinkable, flexible enough to allow up to 180° turns, and requires no installation skill. Uses of the tubing include portable and semi-permanent ventilation service, fume removal, dust collection, and materials handling, in original equipment designs and maintenance applications.

Where to get: Flexible Tubing Corp., Guilford, Conn. (Catalog C2-3)

Subject: **Diesel Engines**

Content: Publication of 12 two-color, two-page specification sheets on Nordberg Type 4FS one, two and three cylinder Diesel engines was recently announced. These bulletins give complete engine specifications, equipment data and outline drawings of the various engine models and are numbered as follows:

Bulletin 208—4FS1 Diesel generator unit.
Bulletin 209—4FS2 Diesel Generator unit.
Bulletin 210—4FS3 Diesel Generator unit.
Bulletin 211—4FS1 Diesel engine with stub shaft.
Bulletin 212—4FS2 Diesel engine with stub shaft.
Bulletin 213—4FS3 Diesel engine with stub shaft.
Bulletin 214—4FS1 Diesel engine with clutch power take-off.
Bulletin 215—4FS2 Diesel engine with clutch power take-off.
Bulletin 216—4FS3 Diesel engine with clutch power take-off.
Bulletin 217—4FS1 Diesel pump unit.
Bulletin 218—4FS2 Diesel pump unit.
Bulletin 219—4FS3 Diesel pump unit.

The 4FS Diesel engines specified in these bulletins are of the heavy-duty four-cycle type built with a 4½-in. bore and 5¼-in. stroke and range in power from 10 to 45 hp, 1200 to 1800 rpm. They were developed expressly for the small power user. They are offered as complete, self-contained ready to operate electric generator sets, centrifugal pump units and with clutch or stub shaft power take-off.

Where to get: Nordberg Manufacturing Co., Milwaukee 1, Wis.

Subject: **Progress Through Wood**

Content: The growth of engineering timber construction, with emphasis on the home building field, is traced in a new book, *Proceedings of Wood Symposium on 100 Years of Engineering Progress with Wood,* just published by Timber Engineering Co., affiliate of National Lumber Manufacturers Association. The book is a compilation of outstand-

THE TOUGH JOBS CALL FOR AN OMAHA
Omaha Dragline Buckets are built to take on the toughest of digging jobs. Their higher arch, their wedge shape, their continuous lip—these features mean that Omaha Buckets are built for work. Available in four types. Send for complete catalog giving description and specifications.
OMAHA
DRAGLINE BUCKETS
DRAKE-WILLIAMS-MOUNT • OMAHA, NEBR.

symposium held during the Centennial of Engineering Convocation in Chicago, Ill. last fall. Symposium sponsors were American Railway Engineering Association, American Society for Testing Materials, Structural Division of American Society of Civil Engineers, and the Wood Industries Division of American Society of Mechanical Engineers. Factors affecting progress in virtually all fields of wood utilization are discussed by 26 of the nation's leading engineers and wood technologists. Timber Engineering Co. has combined 21 papers and six discussions in a single volume to make available to the professions and to the executives of the lumber and wood using industries, a permanent record of the valuable historical and current information on wood as an engineering and industrial material.

books are available.

Where to get: Timber Engineering Co., Dept. WS-B 1319—18th St., N. W., Washington 6, D. C.

Subject: **Elevating Grader**

Content: Actual job data sheets are the basis for the factual information presented in a new, eight page, application booklet. The colorful, well - illustrated folder shows the Domor Elevating Grader on a variety of projects across the nation. Production figures and job descriptions on loading, terracing, casting, ditching and a number of other types of jobs are given in detail.

Where to Get: Domor-Caterpillar Dealer or Ulrich Products Corp., Roanoke, Ill.

Subject: **Plastic Rubber Coatings**

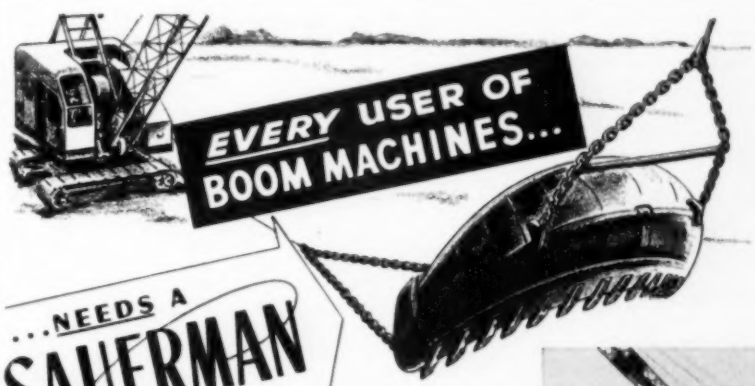
Content: A new, revised catalog contains complete details about Magic-Vulc anti-abrasion and anti-corrosion plastic rubber coatings. Prepared in easy-to-read outline form, the catalog contains important facts about protective coatings and their many industrial and other applications. The use of Magic-Vulc to repair conveyor belts and to protect industrial equipment from corrosion and abrasion is fully described. A complete list of all Magic-Vulc coatings and their uses is contained in the front section of the catalog. Magic-Vulc can be applied without removing belt from pulley — and without using heat or special machinery. Magic-Vulc is also widely used as a tough rubber coating to line, resurface, and protect all types of industrial equipment against corrosion and abrasion.

Where to get: Magic Chemical Co., Dept. N92, 121 Crescent St., Brockton, Mass.

Subject: **Road Machinery**

Content: A study of motor grader applications is a feature of a new colored bulletin, *Adams Road Machinery*. Typical on-the-job photographs show graders at work on road construction, logging operations, coal fields, and snow removal. Motor grader models are broken down to identify individual features. A brief specifications chart is included. Optional equipment that adds to grader's convenience and usefulness is illustrated: Weatherproof cab enclosure; scarifier; big front tires and power steering; elegrader; and snow plow. A final section of bulletin is devoted to Traveloader and pull-type graders.

Where to get: J. D. Adams Mfg. Co., Oliver & Belmont Aves., Indianapolis, Ind.



...NEEDS A

SAUERMAN

Scraper!

Above, a 2½-cu. yd. Crescent scraper is used on a 1-cu. yd. boom dragline and the yardage rises to 270 cu. yd. per hour. The scraper is taking gravel from a roadside pit and delivering to a movable truck loader.

In this picture a Crescent scraper hangs from a trolley that rides on a slack cable extending from the tip of the boom to an anchorage across the river. Thus, it is able to excavate far beyond the reach of the boom and haul material onto the bank.

A Sauerman Crescent Scraper will repay its moderate-initial cost many times over when added to your boom machine as auxiliary equipment. Simple to rig up, it increases the machine's capacity when used on specific job operations mentioned below.

For backfilling, grading and other jobs where material must be moved but not lifted, the conventional casting method is used. The Crescent bites into and gathers the load with the ease of a plowshare, then hauls at ground level and deposits the load automatically when the forward pull is reversed. Machine strain and power consumption required to lift and swing the load to the discharge point are eliminated.

To dig material from a river, deep pit or soft area beyond the reach of the boom, another method is used to rig the Crescent Scraper to the boom machine. For such work the Crescent is suspended by chains from a simple trolley that rides on a track cable extending from the tip of the boom out to a movable anchorage. Digging, hauling and discharge proceed as in the casting operation. Following discharge, the empty scraper is lifted and gravity-returned to the excavation point merely by tightening the track cable.

Any boom machine will handle a Crescent of larger size than its regular dragline and clamshell bucket. The Crescent is much lighter, size for size, than these buckets. Digging power and strength are derived from the Crescent's bottomless construction and flowing lines—not from weight of metal. Users of boom machines can obtain full information by writing for illustrated literature describing how other operators use Sauerman Crescent Scrapers on their machines to increase output and reduce costs.

SAUERMAN BROS., INC.

574 S. CLINTON ST., CHICAGO 7, ILL.

Notes from the manufacturers

Aeroquip Corp., Jackson, Mich., has elected George J. Fischer vice president, sales, and Matthew J. Betley, vice president, manufacturing. Fischer was elevated from general sales manager. Prior to joining Aeroquip, he was associated 18 years with the B. F. Goodrich Co. of Akron, O. A graduate of Heidelberg College, Fischer completed his academic training with postgraduate work in the Harvard School of Business Administration. Betley assumes his new post after serving Aeroquip as works manager. He was previously associated with Electric Sprayit Corp. of Sheboygan, Wis. A graduate of Ripon College, Betley also did graduate work at Northwestern University and Armour Institute.

American Brake Shoe Co., New York 17, N. Y., announces that Gilfry Ward has been appointed president and Joseph L. Mullin first vice president of the company's American Manganese Steel Division. Ward joined the Amsco Division of the company as a trainee in the engineering department upon graduation from Yale University in 1928. In 1932 he transferred to the sales department and in 1937 was appointed a district sales manager. In 1938 Ward was made vice president and in 1948 was placed in charge of sales for the Division. Mullin was formerly vice president in charge of operations of the Amsco Division. Mullin joined the company as a clerk in 1914. He held various jobs in the operating department and in 1928 he was appointed general superintendent of foundries for the Amsco Division. In 1945 he became vice president in charge of operations for the Division.

Bucyrus-Erie Co., South Milwaukee, Wis., has appointed Cleveland Brothers Equipment Co., Harrisburg, Pa., distributor for its ⅜ to 4-yd. gasoline, Diesel, and single-motor electric, general purpose convertible excavators in east central Pennsylvania. Located at Route 322 (Hershey Rd.), Cleveland Brothers maintains branches on Route 209 (Ashley By-Pass), Wilkes-Barre and Route 122 (State Rd.), Frackville. The distributor will also handle the truck-mounted Hydrocrane and Hydrohoe as well as Red Arch dragline buckets. Cleveland Brothers' territory consists of that part of Pennsylvania east of and including the counties of Tioga, Lycoming, Clinton, Centre, Hungtingdon, and Fulton; and west of and including Wayne, Pike, Monroe, Carbon, Schuylkill, Lebanon, and Landcaster counties.

Bushwacker Division, American Steel Dredge Co., Inc., Fort Wayne, Ind., has appointed Vernon Mandt as sales manager. Mandt was formerly sales manager of the Mandt Mfg. Division of Pettibone-Mulliken Corp., and founder of the Mandt Manufacturing Co. Prior to that Mandt served the Jaeger Machine Co. for 15 years as regional manager.

Caterpillar Tractor Co., Peoria 8, Ill., has effected realignment of its sales department at the executive level. Newly created is another position of assistant director of sales. This gives Caterpillar three assistant sales directors. The new post became effective Jan. 1. The announcement was coincident with the return of J. W. Mohler to Caterpillar after 10 months as an official with the National Production Board in Washington, D. C. He will resume his former position of assistant director of sales by taking full administrative responsibility for the promotional activities of the sales department. He will have direction over the sales development, sales engineering, sales training, and market research divisions. J. J. Valentine and W. S. Zeigler will continue as assistant directors of sales with a realignment of duties. Valentine will be in charge of the western, plains, and industrial sales divisions. Zeigler will handle central, eastern, and governmental sales divisions. Mohler, who graduated from the University of Illinois, started work at Caterpillar in 1934 in the factory. He joined the sales department in 1935. In 1941 he took a leave of absence from Caterpillar to work in the Office of Priorities Management in Washington, D. C. Before he rejoined Caterpillar in 1944 he had been director of production division and assistant vice chairman in charge of operations of the War Productions Board. In October 1944 Mohler was named a district representative. In 1945 he was promoted to an assistant sales manager and was made manager of the sales training division in 1948. He advanced to assistant director of sales in 1949. Valentine has been assistant director of sales since 1949. An Oakland, Calif. native, Valentine joined Caterpillar as a laborer and order clerk in 1929 in San Leandro, Calif. following graduation from the University of Washington. He was in the export department for nine years, part of which he spent as district representative in Australia and New Zealand. He was named domestic credit manager in 1942 and later that year became expediting manager for the purchasing department in Washington, D. C. In 1943 he became central division sales manager and was named assistant general sales manager in 1948. Zeigler joined Caterpillar in 1929. He was appointed assistant director of sales in March 1952 as successor to Mohler. Prior to that he was a special representative, district representative, assistant divisional sales manager, and sales manager of Caterpillar's eastern sales division.

Colorado Fuel and Iron Corp., New York, N. Y., the nation's ninth largest steel producer, has completed the acquisition of the plants, inventories, and business of John A. Roebling's Sons Co., Trenton, N. J. The Roebling properties will be operated by John A. Roebling's Sons Corp., a newly-formed and wholly-owned subsidiary of Colorado Fuel and Iron. At a meeting of the board of directors of the new Roebling Corp. held in Trenton, N. J., Charles Allen, Jr., was named chairman of the board, A. F. Franz was named president, and Charles Roebling Tyson, executive vice president. The present eleven members of the Colorado Fuel and Iron Corp. board of directors were elected to the Roebling Corp. board of directors in addition to Mr. Tyson. Mr. Franz is president of Colorado Fuel and Iron, and Mr. Tyson served as president of the Roebling concern from 1944 until its acquisition by Colorado Fuel and Iron. Roebling was founded in 1841 by John A. Roebling, builder of the Brooklyn bridge. It operates plants in Trenton and Roebling, N. J., producing steel wire, cold rolled steel specialties, wire rope, electrical wire, and cable and bridge products. The net depreciated value of the fixed assets being purchased is approximately $23.5 million and the current value of inventories is about $17.5 million.

Cooper-Bessemer Corp., Mount Vernon, O. announced the formation of two wholly-owned subsidiary companies. Known as Cooper-Bessemer International Corp. and Cooper-Bessemer Overseas Corp., the new companies serve as exclusive export sales

How Bucyrus-Erie Drills Give You

Extra

DRILLING FOOTAGE ...EVERY SHIFT

FAST-working Bucyrus-Erie Blast Hole Drills deliver P-O-W-E-R at the point of impact that pushes holes down fast. Here's what makes that power add up.

Rapid, Even Drilling Rhythm Bucyrus-Erie drills travel at the rate of between 55 and 58 evenly spaced strokes per minute. This fast, even stroke coupled with the sharp hit-and-snap-up action provided by the derrick head shock absorbers shatters rock in a hurry.

Long Stroke Bucyrus-Erie drills match smooth drilling motion with a long stroke. (46-in. maximum for 42-T, 44-in. for 29-T, 40-in. for 27-T, 36-in. for 22-T.) It's this long stroke that multiplies the impact of the tool string.

Tool Strings of Maximum Weight Bucyrus-Erie drills can handle extra tool strings because these rigs combine strong, rigid steel construction with plentiful reserve power. Add heavy tool strings to fast, sharp action and a long stroke and you have the answer to Bucyrus-Erie's leadership in high-speed, low-cost hole footage.

126852

There are many additional reasons why Bucyrus-Erie's are the Big Four of blast hole drilling. Write for full details.

22-T	**5⅜" to 6⅝"**	**holes**
27-T	**6" to 6⅝"**	**holes**
29-T	**6" to 9"**	**holes**
42-T	**9" to 12"**	**holes**

Diesel or electric power is available for all machines, gasoline for all except 42-T.

BUCYRUS ERIE

SOUTH MILWAUKEE, WISCONSIN

distributors for Cooper-Bessemer engines and compressors. Cooper-Bessemer International will handle all sales of the company's products in the Western Hemisphere outside the U. S. Cooper-Bessemer Overseas will be responsible for sales to the rest of the world. The companies were formed to facilitate expansion of the manufacturer's export market, to maintain closer control over foreign sales policies, and to provide more effective service for C-B customers outside the U. S. Both companies are headed by Michael C. Pollock, with a staff of assistants, located at 25 W. 43rd St., Suite 1112-13, New York, N. Y. Present Plans provide for Cooper-Bessemer International offices in Caracas, Venezuela, Sao Paulo, Brazil and Mexico City, Mexico.

Cummins Engine Co., Inc., Columbus, Ind., has appointed E. D. Tull to the newly created position of vice president and general manager. Tull, a native of Columbus, has been with Cummins since 1928. In February of this year he was named vice president of personnel and plant and recently was elected to the company's board of directors. As vice president and general manager, Tull will be responsible for coordinating the work of the five divisions of the company.

Euclid Road Machinery Co., Cleveland 17, O., has released a new 16 mm sound-color film. Operations of the Euclid twin-power scraper are treated in the new film. Twenty minutes in length, it shows numerous types of applications such as stripping operations; road, airport, and levee construction; sand hauling; and stockpiling of coal and ore. It illustrates how two separate engines, powering individual front and rear axles and driving through torque converters and semi-automatic transmissions, makes it possible to self-load in most materials, travel over soft ground and up steep grades, and haul large loads over poor haul roads. Contractors, mine and quarry operators, and industrial concerns may make arrangements for showing the film through their local Euclid distributor.

Gar Wood Industries, Inc., Wayne, Mich. has appointed James E. Edelbrock manager of the Chicago factory branch. He replaces Ross Miller who has assumed the position of vice president and general manager of National Lift Co., Waukesha, Wis., a subsidiary. Edelbrock, who attended Findlay College and Ohio State, formerly served in the executive sales office. Gar Wood will move its National Lift Co. subsidiary from Waukesha, Wis., to the company's recently acquired United Stove Co. plant in Ypsilanti, Mich. The National Lift Co. manufactures the "Jumbo" and "Dump-O-Matic" line of dump body hoists, "Lift-O-Matic" elevating tail gates for pick-up trucks and hydraulic snowplow control units. Manufacturing operations will be directed by Kenneth B. True, recently elected vice-president and general manager of the United Stove Co. In addition to using the Ypsilanti plant facilities for manufacture of the National Lift products, Gar Wood will continue to manufacture United Stove Products which include the Savoil line of kerosene and fuel oil features. Gar Wood has appointed Shipley, Inc., Louisville, Ky., as distributor for its Wayne Division products.

General Electric Co., Schenectady, N. Y., has initiated a new program to provide its customers with prompt service on inoperative electric motors. Called the small motor service station plan, the program is expected to improve previous exchange plans by providing a more complete network of repair stations for G-E fractional horsepower and small integral horsepower motors. In general, the plan was developed to better serve the requirements of original equipment manufacturers with a widespread system to which their customers and dealers can refer inoperative motors. Under the plan, an authorized G-E small motor service station will provide in- and out-of warranty service on G-E motors, generators, and motor-generator sets of 1/20 to 15 hp and ¼ to 10 kw. The service will include general repairing, furnishing renewal parts, and exchanging motors for those that are inoperative. Present plans for the program call for the authorization of 180 key repair stations throughout the country. Each service station also will be offered a franchise as a distributor for G-E single-phase motors and motor renewal parts.

Harnischfeger Corp., Milwaukee, Wis., has opened its large new sales office, warehouse, and service station in Birmingham, Ala. This opening also announces the consolidation in

TO ADVERTISE: All advertising in this section is payable in advance. Rate: $1.00 per line, or $12.00 per inch of 12 lines. Minimum charge $4.00. No discounts; no commissions. Please count your copy carefully to avoid delay. Each line contains 41 characters (34 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number, if blind advertisement is desired. Be sure to enclose the correct amount of money with your order. Closing date—15th of preceding month. Example: January closes December 15th.

TO INQUIRE: Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of Excavating Engineer, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

Page 625 diesel walking dragline. 150 ft. boom, 9 cu. yd. bucket, 4 years old. Good operating condition. Price $150,000. Loaded on cars. Location Middle East. Box 3486

Bucyrus-Erie 320-B electric shovel, serial No. 4957, mounted on AMSCO shovel crawlers, operating on 4100 volts with Ward-Leonard control; equipped with 75 ft. boom, 54 ft. dipper handle and 12 cu. yd. bucket. Machine can be inspected and is available immediately. Good condition. Write, wire or phone:

Pioneer Mining Corporation
Appleton City, Missouri

Page 625 Electric Walking Dragline, 150-ft. boom, 9-cu. yd. bucket. Excellent operating condition. Price $150,000 f.o.b. cars. Located Middle East. Available approximately May 1, 1953. Box 3504

Bucyrus-Erie 120-B dragline excavator, full electric Ward Leonard control. Serial No. 23065 with 100-ft. boom special cast manganese steel. 48-in. wide track pads including 4½-yd. heavy duty Esco mining bucket serial no. 4130 or a special 6-yd. Esco bucket serial no. 1367 including 940-ft. rubber covered 2300 volt power cable. Located in California.

Thurman and Wright
625 Market St. San Francisco, Calif.
Phone EXbrook 2-8260

Bucyrus-Erie 120-B electric shovel. Shipped in January, 1947, but used approximately 4 years. In good operating condition. Located northern Minnesota. Box 3507

2—9-W Bucyrus Monighan Draglines.
1—5-W Bucyrus Monighan Dragline.
1—200-W Bucyrus Monighan Dragline.
1—120-B Bucyrus Elect. Dragline & Shovel.
1—44-B Bucyrus Dragline & Shovel.
1—9-W in Ohio—others in Wash. & Idaho.

J. A. TERTELING & SONS, INC.
Box 1428 Ph. 4-3576 Boise, Ida.

Northwest model 25; 6; 80D; 95. Manitowoc 6500; 4500 new — will rent. Bucyrus 54-B; Monighan 5W; 7W; 9W; 450.

A. W. Nevers Phone 32 Mt. Pleasant, Iowa

Bucyrus-Erie model 22-B excavating machine. Independent power boom hoist, powered by model K-428 Buda 6 cyl. gasoline engine with electric starter. Machine complete with extra counterweight and set of drum leggings for ¾-in. cable. Machine equipped with 35-ft. boom with sheaves, for dragline or clamshell operation. RSP-185 (A). Sale price F.O.B. Paducah, Ky. $14,500. Box 3512

Practically new Bucyrus-Erie Model 22-B dragline, 50 foot boom, Caterpillar diesel engine, extra counterweight. Serial No. 96264. Presently working near Kansas City. Box 3494

Marion type 481, serial No. 6958. 2-yd. Diesel electric shovel with extra 2-yd. bucket. Sale price F.O.B. Louisville, Ky. $10,000. Box 3508

37-B crane with 45 ft. boom, powered by 60 hp electric motor, 440 volt, 60 cycle, 3 phase, alternating current, complete with 200 ft. of electric drill cable. Price $11,500.

Stuart M. Christhilf & Co., Inc.
134-136 West Mt. Royal Ave.
Baltimore 1, Maryland
Phone Lexington 4313

Model 10-B No. 18121 Comb. ⅜ cu. yd. shovel and dragshovel, gasoline driven. Box 3502

P&H Model 255-A No. 13201 ¾ cubic yard diesel shovel with Model 387-C Harnischfeger diesel engine with electric starting and also equipped with 2-cylinder air-cooled light plant. Box 3497

Used Koehring Model 304 crane Serial No. C-2638 equipped with Buda Model 4K-29-10488-C gasoline engine Serial No. 254650. (Just reconditioned.) Mounted on 6 wheel Model KSC-2-8 (CU-15); oscillating front axle; bevel gear final drive (1.00 to 1.00); outriggers front and rear. 14.00 x 20 tires; 18" frame; 154" wheel base; Manufacturer Six Wheels, Inc., Los Angeles, Calif.
Used Bucyrus-Erie 10-B positive crowd shovel with 13' 6" boom, 11' handle ⅜ yd. cast front dipper fully enclosed steel cab, power boom hoist, caterpillar mounting 9' 1" long overall, 7' 8" wide overall, 14" wide treads; equipped with Buda 4 B-230 6 cylinder gasoline engine No. 204032 with electric starter. Machine No. 60098.
Used Universal ⅝ yd. capacity shovel ⅝ swing with gasoline engine. Very reasonable.

Stuart M. Christhilf & Co., Inc.
134-136 W. Mt. Royal Ave. Baltimore 1, Md.

*Lorain model L50J combination 1-yd. shovel and lifting crane with 60-ft. boom, pendant suspension 15-ft. jib, powered with Caterpillar Mdl. D318 Diesel engine. Machine is 2 years' old. Very good condition (RSP-194 (B). Sale price F.O.B. Paducah, Ky. $16,000. *Note: Can reduce price if either front end is not required. Box 3509

51-B Diesel Dragline Excavator mounted on oversize Caterpillars. 70-ft. boom, light plant, and 54-B Diesel Dragline Excavator 80-ft. boom, oversize Caterpillars, electric light plant. Machines approximately 5 years old. Located in central South. For details and inspection reply to: Box 3505

SHOVELS—CRANES—DRAGLINES
38-B crane-dragline 1950 Model GMC diesel.
Model 6 Northwest crane-dragline 1950 Models.
Special 33-in. cats—Murphy diesel—two on hand.
38-B crane-drag-backhoe 1948 Model Cat diesel.
All located in Middle West.

Sales Reasonable Prices .... **Rentals**

J. C. French, 226 Berry Parkway, Park Ridge, Ill.
Tel. TAlcott 3-4927.

Koehring model 1005 Diesel shovel, 2½ cu. yd. dipper. Delivered new, 1949. Located south central Missouri. Immediate delivery. Box 3493

Lorain model No. 77 shovel with 2½ cu. yd. Amsco bucket, Caterpillar Diesel engine. $8800 in repairs since use. Sale price F.O.B. Louisville, Ky. $19,000. Box 3511

P&H Model 855-B No. 12661 2-yd. comb. diesel shovel and dragline with 50 ft. dragline boom, 2-yd. dragline bucket and powered by a General Motors Model 671 diesel engine. Also equipped with 4-cylinder light plant. Box 3496

Bucyrus-Erie 44-B shovel with 24-ft. boom, 19-ft. handle, 2-cu. yd. dipper. Clamshell and lifting crane equipment including 100-ft. boom, Buda Diesel engine. Excellent condition. For further information contact:

D. D. Kennedy, Inc.
Mannheim Road (U.S. 45) at Madison Street
P. O. Box 278 Bellwood, Ill.
Phone Chicago—Estebrooke 8-5223

Northwest model 105 combination shovel and crane. Serial No. 2238. Gasoline engine Twin City. S-0000 (C). Sale price F.O.B. Louisville, Ky. $3800. Box 3510

22-T Drill No. 40883—G.E. electric motor 440 or 220 volts, 3 phase, 60 cycle—in good operating condition.

Concrete Material Company
3800 W. Madison Sioux Falls, S. D.

BUCYRUS-ERIE 44-B chain crowd shovel 2-cu. yd. dipper, Buda Diesel engine, Kohler light plant. Rebuilt and guaranteed. Priced to sell.
BUCYRUS-ERIE hydrocrane model H-3 with ¾-cu. yd. clamshell bucket, telescopic boom, mounted on Ford F6, hydraulic outriggers. Good condition throughout. Price $6,000.
MARION model 362 1½ yd. crane, 60-ft. boom, Caterpillar D3000 Diesel engine. Marion model 331 combination backhoe and clamshell heavy duty ¾ yd. Can handle 1-yd. bucket 45-ft. boom—Buda gas engine. Good working condition. Price $10,000.
INTERNATIONAL TD-24 Diesel tractor. Bucyrus-Erie straight bulldozer and double drum cable control. New in 1949. Condition shows good maintenance. Price $15,500.
INTERNATIONAL TD-18 Diesel tractor, Bucyrus-Erie hydraulic bulldozer, new motor and transmission. First class shape throughout. S/NTDR-13703. Price $6,500.
INTERNATIONAL TD-14 Diesel tractor. Bucyrus-Erie angle blade. Good condition. Price $6,600.
Five HEILINER model 2C800, Cummins Diesel engine. Scraper model C16, 17-cu. yds. cap. All new 24:00 x 29-24 ply tires. Excellent condition.

Inquire for prices and detail:
H. O. PENN MACHINERY CO., INC.
140th Street & East River
New York 54, New York

Continued on page 80

For Sale

Continued from page 79

CATERPILLAR D-8 Tractor, Serial No. 8R4454 with LaPlant-Choate angle dozer and Caterpillar double drum PCU, cab and lighting system. Price $4,000.

TWO 8-yd. Page special heavy duty dragline buckets. Good condition. Each $1500.

5-yd. ABC heavy duty dragline bucket, practically new. Complete with attachments. Price $1500. Location of equipment—Middle East. Box 3503

Two Model 29-T Bucyrus-Erie electric blast hole drills with tools. Excellent condition.

Basic Refractories, Inc.
Maple Grove, Ohio

Bucyrus-Erie 60-ft. boom. Drum with steam ram and levers to convert 41-B steam shovel to crane work.

DARIEN
60 E. 42nd St. New York, N. Y.

ALLIS-CHALMERS Model HD-10W Tractor with Gar Wood cable dozecaster.
BAY CITY Model 20, ½ yd. shovel.
CATERPILLAR Model 12 motor grader with scarifier.
GAR WOOD 511 Cable Scraper.
E. F. CRAVEN COMPANY
P. O. Box 538 Greensboro, N. C.
Phone 3-5521

Monighan 25, 12, 9, 7-yd. Walking Draglines.
Whirley portal gantry cranes, 25-40 tons.
Bucyrus 120-B 25 cycle elec. shovel, 4½-yd.
Marion elec. 7½-yd. & 4-yd. diesel shovels.
Mack 32-ton diesel trucks; 22-ton Euclids.
Shovels, draglines, cranes, 1½ to 18 yds.
Locomotives, 7 to 80 tons, diesel gasoline.
Derrick boats, 50, 30, 15 tons, steam.
Nordberg-G.E. 875 KW diesel elec. gen. set.
Gyratory crushers, 42", 27", 20".
Bucyrus 55B or 52B 2½ yd. shovel attach.
H. Y. SMITH COMPANY
828 N. Broadway Milwaukee 2, Wis.

WANTED TO BUY

Wanted: Back Hoe attachment for late model 25 Northwest Crane. Ferguson Corporation, P.O. Box 480, Hampton, Virginia.

Wanted: Oversize caterpillar mounting for Bucyrus-Erie Model 44-B. Box 3489

HELP WANTED

EXPORT SERVICE ENGINEER required by manufacturer of tractor equipment. Should be well advised on crawler tractors and allied equipment. Must be willing to travel abroad. Box 3500

Birmingham of all territory formerly served by P&H offices in Memphis, Tenn. and Jacksonville, Fla. Harnischfeger will retain sales representation in these two cities, but major functions will be centralized in the Alabama city to provide customers in Southeastern states, as well as Louisiana and Arkansas, with larger warehousing facilities and more extensive service accommodations. Moving up from his position as Memphis district manager to take charge of the new plant and territory is Ray M. Calkins, a veteran of 28 years of service with Harnischfeger. Calkins has been director of Memphis area activities since 1945 and formerly served in P&H's engineering specifications and stores departments before becoming assistant sales manager of the company's small excavator division in 1938

Harnischfeger Corp. has appointed Don E. Sweeney new sales manager of P&H's Diesel engine division, Crystal Lake, Ill. Sweeney, who was formerly associated with General Motors Corp., succeeds R. H. Fitz. During World War II, Sweeney served with Army Ordnance. Previously he held the position of district manager for the Michigan Public Service Co. and also was associated with Westinghouse Electric Supply Co. in a sales capacity. Sweeney attended Cornell University.

Harnischfeger has named Irving Shapiro district manager of the Boston office. Shapiro joined Harnischfeger in 1934, after receiving his degree from Rensselaer Polytechnic Institute.

Hercules Powder Co., Wilmington, Del., has named Frederick G. Huxster manager of chemical operations for its explosives department. Huxster will succeed J. Leroy Bennett. Huxster, a veteran of 30 years' service with Hercules, has been in executive posts at Hercules plants in Utah, Alabama, California, and New Jersey.

Hewitt-Robins, Inc., Stamford, Conn., recently dedicated a $1 million addition to the company's conveyor belt plant at Buffalo, N. Y. The new facilities will increase Hewitt-Robins' conveyor belt production capacity by 41% and will make the plant one of the largest and most modern in the world. New equipment includes a press costing $220,000 which will make belts up to 72-in. wide compared with the previous limit of 60 inches.

Koehring Co., Milwaukee 16, Wis., recently appointed K. R. Chandler district representative for Koehring Co. and subsidiary companies, Parsons and Kwik-Mix in the territory comprised of Utah, Arizona, Nevada, and California. Chandler joined the engineering department in 1948. He was transferred to the sales department in 1950 and has been active in sales since that time. Chandler graduated from the University of Wisconsin in June 1947 with a degree in civil engineering. After graduation he remained at the University for a semester and served as an instructor in the school of engineering.

R. G. LeTourneau, Inc., Peoria, Ill., has announced the promotion of Harry R. Powers, eastern area sales manager, to the post of domestic sales manager. Powers has been in the heavy construction equipment field for the past 30 years. During World War II Powers supervised Army maintenance operations for three years, serving at Teheran, Iran, and Ft. Belvoir, Va. Joining the LeTourneau Co. in 1945 as a district sales representative, he has served as eastern area sales manager for the past five years. In his new position Powers succeeds R. P. Nichols who has joined the newly appointed LeTourneau distributor, Ryan Equipment Co. of St. Louis, Mo.

Marion Power Shovel Co., Marion, O., has appointed two new sales representatives. William B. McCausland has been appointed to the company's district office in New York City, and E. Edward Staker has been appointed to the northwestern Ohio territory. McCausland was formerly associated with the J. D. Adams Manufacturing Co. of Indianapolis, Ind., serving as district manager for the company's New England area. He attended Washington and Lee University and received a degree in commerce. Staker has been with Marion since July 1951 as a service and erection engineer. He attended Ohio State University and received a degree in mechanical engineering in 1949.

Motorola Inc., Chicago, Ill., has announced the organization of a wholly owned subsidiary corporation, Motorola Communications and Electronics, Inc. The new company will distribute products manufactured by the communications and electronics division of the parent corporation. These products include complete mobile two-way radio systems, multichannel microwave relay systems, power line carrier, supervisory and industrial control equipment. No change is contemplated in the field sales personnel for these communication products as a result of the organization of the new company, and operations of the other divisions of Motorola are not affected.

Big loads in tough going are easy for this Cat DW20-No. 20 unit, one of 8 on the job at Old Hickory. The Lima dragline is powered by a Caterpillar D17000 Engine.

but DW20s maintain schedule at Old Hickory

The Old Hickory Lock and Dam project, in Tennessee, calls for moving 1,700,000 yards of heavy, fat clay. Roads are spongy, grades are steep. But H. N. Rodgers & Sons Co., of Memphis, have kept up to schedule.

The big reason is their use of Caterpillar DW20 Tractors and No. 20 Wagons. With 225 honest horsepower available at the flywheel, these big yellow wheel tractors can pull through heavy clay cuts without excessive engine strain, and they travel 26 mph. on the haul.

The No. 20 Wagon is a perfectly matched unit, with 20-cu.-yd. heaped capacity. That means up to 25 tons in heavy material. The wagon is an easy target to hit with the shovel, and positive controls make possible either instantaneous or windrow dumping.

The Rodgers firm has been using Caterpillar equipment for 23 years, and the fact that 90% of their present machines are Cats shows what they think of them.

Your Caterpillar Dealer will gladly demonstrate the DW20-No. 20 team for you in any kind of hauling you choose. And he backs it with genuine Caterpillar parts and service—the only kind that gives you genuine Caterpillar performance. See him today!

CATERPILLAR, PEORIA, ILLINOIS

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EARTHMOVING EQUIPMENT

Have you *calculated* the economy of long-lasting wire rope?

Anyone using wire rope in quantity can't afford to guess whether it's a good buy. Each installation had better prove itself right down to the last decimal. That's how we want you to judge tough, flexible Preformed Yellow Strand. Its economies are the measurable kind: a fast rig-up and break-in . . . accurate control by the operator . . . prolonged service in the face of bending stresses, high speeds and shock loads. Seeing that you get the correct line for top production is the job of our special wire-rope engineers. Tell us now that you'd like to have one call.

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